NETWORK WORLD
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DEC details 18-month Phase V plan

By Tom Smith
New Products Editor

DALLAS — Digital Equipment Corp. last week announced an enhanced X.25 communications product as part of DECnet Phase V, its implementation of the OSI model, and committed to rolling out other Phase V products over the next 18 months.

While analysts met the new product announcement with indifference, some criticized DEC for failing to meet the three-year Phase V implementation course the company set in September 1987.

The news was met with "extreme disappointment" by Bud Huber, manager of advanced networks integration at Hughes Aircraft Co. in Long Beach, Calif., whose strategic direction is a migration to Open Systems Interconnection.

"I don't know how many more delays we have to go through before the vendor community really gets serious about doing what needs to be done in opening up their systems," Huber said. "And that's what Phase V is about — open systems."

While not conceding the lateness issue, Audrey Augun, open networks marketing manager at DEC in Merrimack, N.H., admit-

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PHOTO ©1990 STAN WOLENSKI

LANs took center stage at last week's NetWorld '90 in steamy Dallas. See NetWorld news coverage on this page and pages 2, 4, 6 and 33.

Privacy suit forces users to examine E-mail policies

Case against Epson raises troubling questions.

By Wayne Eckerson
Senior Writer

A multimillion-dollar class-action lawsuit filed last month against Epson America, Inc. has prompted many firms to take a closer look at their policies governing use of electronic mail.

The suit, filed by four former employees of the Torrance, Calif., company, charges Epson with invasion of privacy for reading incoming E-mail and employee messages.

Currently pending review in a Los Angeles Superior Court, the suit seeks $3,000 in damages for each of the 700 Epson employees who use E-mail and at least 2,000 other people who have sent electronic messages to Epson.

Alana Shoars, one of the plaintiffs in the suit and a former E-mail specialist at Epson, claims she was fired last January for protesting her manager's alleged habit of reviewing thousands of password-protected E-mail messages that passed through a gate-

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Banyan offers potent new release of VINES

Stages NetWorld '90 debut of new operating system for symmetrical multiprocessing server.

By Laura DiDio
Senior Editor

DALLAS — Banyan Systems, Inc. used the NetWorld '90 conference here last week to announce VINES SMP, a version of the company's network operating system designed for file servers with symmetric processors.

VINES SMP, scheduled to ship this month, is the only network operating system announced to date that supports the symmetric operation of multiple processors in Intel Corp. 80386- and 80486-based local-area network file servers.

The initial version of VINES SMP, which will be compatible with existing single-processor versions of VINES, will run on Compaq Computer Corp.'s multiprocessor SystemPro server, said James Allchin, Banyan vice-president and chief technical officer.

Subsequent versions will be made available for Unix-based servers such as those offered by AT&T, Hewlett-Packard Co., Sun Microsystems, Inc. and others, although no specific plans were announced.

Because it takes advantage of symmetric multiprocessing, VINES SMP improves network performance and enables a single server to support an increased number of users and applications, Allchin said.

All other network operating systems, such as Novell, Inc.'s NetWare and Microsoft Corp.'s OS/2 LAN Manager, are optimized for machines with one

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INSIDE

Maritime companies sail with satellite nets, page 38.

Group seeks delay of LEC price caps

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — A coalition of 29 major corporations, user groups, regulators and vendors last week issued an eleventh hour plea to FCC Chairman Alfred Sikes to delay a final vote on a price cap plan for local exchange carriers — a vote that could come as early as Wednesday.

The coalition, which includes the Ad Hoc Telecommunications Users Committee, the International Communications Association and the Tele-Communications Association, Inc., claims the Federal Communications Commission has not clearly explained how its price cap plan for local carriers would work. The FCC has proposed implementing price caps beginning Jan. 1.

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NEWSPAPER

FEATURE

Carriers use different tactics to service users

By Daniel Briere
Contributing Editor

Customer service has become a key marketing weapon in the continuing battle between the Big Three interexchange carriers — AT&T, MCI Communications Corp. and US Sprint Communications Co.

With the disappearance of the huge price differentials of the early days of competition, carriers must work harder than before to distinguish themselves. With lower margins, less manpower and higher user expectations, it's getting difficult to sell long distance. Carriers are hoping to attract users by developing broad customer service programs that expand well beyond the simplistic traditional definition of service representatives answering the phone.

Customer service is defined

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Houston 30 group to join COS, settles on new name

Fledgling open systems group becomes User Alliance for Open Systems; new leaders elected.

By Wayne Eckerson
Senior Writer

WARREN, Mich. — The Houston 30 last week took several major steps designed to establish the fledgling group as an official body representing user interests in the open systems arena.

Ending months of speculation, the group — composed of information systems and network managers from some of the nation's largest companies — voted to become part of the Corporation for Open Systems International (COS) during a three-day meeting here.

Representatives said the move will give the fledgling group much-needed administrative support without compromising its mission, which is to speed the development and deployment of open systems.

The group also elected its leaders, established fees and adopted an official name — the User Alliance for Open Systems (UAOS).

The new name replaces the group's unofficial Houston 30 tag, which referred to the number of people who attended the organization's second meeting in May in Houston.

About 45 users attended the group's meeting here, where much of the time was spent brainstorming on ways to overcome

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Software Publishing intros client/server application

InfoAlliance lets PC users access corporate data.

By John Gallant
Editor

DALLAS — Software Publishing Corp. last week introduced what it calls a data source integration package that company President and Chief Executive Officer Fred Gibbons described as "the killer application" that will drive acceptance of OS/2 and client/server computing.

Unveiled at the NetWorld '90 conference here, the company's InfoAlliance software runs on local-area network workstations and servers, enabling users to access and manipulate information from a variety of sources across a corporate network through a graphical interface.

In addition to providing access to data, InfoAlliance provides a number of report- and form-generation tools, along with application development capabilities.

The server portion runs under OS/2 and can be used with Microsoft Corp. LAN Manager, IBM LAN Server or Novell, Inc. NetWare networks. Novell users would require Novell's NetWare Requestor for OS/2.

The workstation portion runs under OS/2 Presentation Manager but will be available for Microsoft Windows 3.0 clients in the second quarter of 1991.

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Oracle, Compaq unveil SQL software for Unix servers

By Laura DiDio
Senior Editor

DALLAS — Oracle Corp. and Compaq Computer Corp. last week unveiled a version of Oracle's SQL data base server software that runs on Compaq's Unix- and 80486-based SystemPro, as well as other Unix servers.

The Oracle Server for PC Unix, unveiled at the NetWorld '90 conference here, is designed to take advantage of the symmetrical multiprocessing capabilities of the Compaq SystemPro running Santa Cruz Operations, Inc.'s SCO Unix System V, AT&T's Unix System V and Interactive Systems Corp.'s versions of Unix.

The data base server is capable of processing more than 42 tranactions per second, which is four times faster than any personal computer data base server currently available, according to Stan Tims, director of marketing in Oracle's Unix division.

Oracle Server for PC Unix is based on Version 6.0 of the Oracle relational data base management system, which runs on more than 80 hardware platforms.

The product is said to be the first personal computer local-area network data base server designed to utilize symmetical multiprocessing capabilities. The SystemPro supports scalable multiprocessing, meaning users

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Briefs

Frame relay goes public. Sprint Data Group is expected to announce a new frame relay service next week at Tele-Communications Association, Inc.'s annual conference in San Diego. Sprint Data, the former Telenet Communications Corp., will use StrataCom, Inc's IPX FastPacket T-1 multiplexers as backbone switches to support the service, which is expected to be available in the first quarter of 1991, sources said. To access the service, which is said to be an efficient means of supporting such bursty data applications as local-area network bridging, users will need a frame relay-compatible device, such as a bridge or router. Vendors, including cicso Systems, Inc., Digital Equipment Corp. and Vitalink Communications Corp., have announced their intention to provide such devices.

Free caller ID blocking. Nynex Corp. last week said its New England Telephone and Telegraph Co. subsidiary next month will begin offering a caller identification blocking feature free of charge to customers in Vermont. Vermont is the only state in Nynex's territory where caller ID is offered. The new feature will enable customers to hide their identification from users with caller ID by punching "*67," on push-button phones or dialing "1167" on rotary phones. The letter "P" or the word "private" will be displayed on the caller ID users' phones.

DEC to get SNA control. Digital Equipment Corp. and Systems Center, Inc. last week announced they will jointly develop, market and support products that will enable users of DEC's VAX-based DEC Management Control Center (DECmcc) to monitor and control IBM Systems Network Architecture networks. This will be made possible by introducing products that enable DECmcc to communicate bidirectionally with both Net/Master, Systems Center's SNA management product, and NetView, IBM's SNA management product. Both companies declined to disclose product specifics.

AT&T to resell SS7 services. AT&T last week introduced Virtual Signaling Network (VSN), a service that will allow independent telephone companies to use AT&T's Signaling System 7 (SS7) network to offer advanced calling services. VSN is targeted at telephone companies that want SS7 benefits — such as faster call setup and the ability to verify calling card, collect and third-party calls — but cannot justify the expense of building their own out-of-band signaling networks. VSN is due out early next year.

MCI Vnet goes global. MCI Communications Corp. last week said it will begin offering in November an international Vnet virtual network service between the U.S. and the U.K.. The service, which interconnects Vnet in the U.S. with British Telecommunications PLC's International FeatureNet in the U.K., will be tested next month by two large Vnet customers in the U.S., a major airline and a national publishing company. MCI declined to reveal the identity of the customers.

Doelz finds a home. Timeplex, Inc. last week announced it is acquiring Doelz, Inc., in part to gain the engineering expertise it will need to develop its next-generation cell relay multiplexers (see "Timeplex muxes to support frame relay," page 62). Doelz makes the Esprit One, a high-speed virtual circuit switch, and the Elite One, a network concentrator. Timeplex said it will continue to market and support the products.

One trading net bows, other delayed. The New York Stock Exchange (NYSE) last week announced plans to begin supporting two electronic trading sessions after normal NYSE trading hours. One session will run from 4:15 p.m. to 5 p.m. and will be used to automatically execute trades at the closing price that day. The other will be used to execute certain program trades and will run from 4:15 p.m. to 5:15 p.m. In both instances, buy and sell orders will be routed over existing network links from brokerage firms to NYSE computers, where customized NYSE software will process the transactions.

Separately, the Chicago Mercantile Exchange last week announced that the launch of its Globex after-hours, electronic trading system will be delayed until the first quarter of 1991. Globex was originally scheduled to be on-line in the first quarter of 1989. The launch was delayed until November of this year in order to bring the Chicago Board of Trade into the network. Now difficulties modifying software and net facilities to support extra trading volumes have pushed the launch back further.

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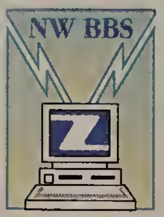

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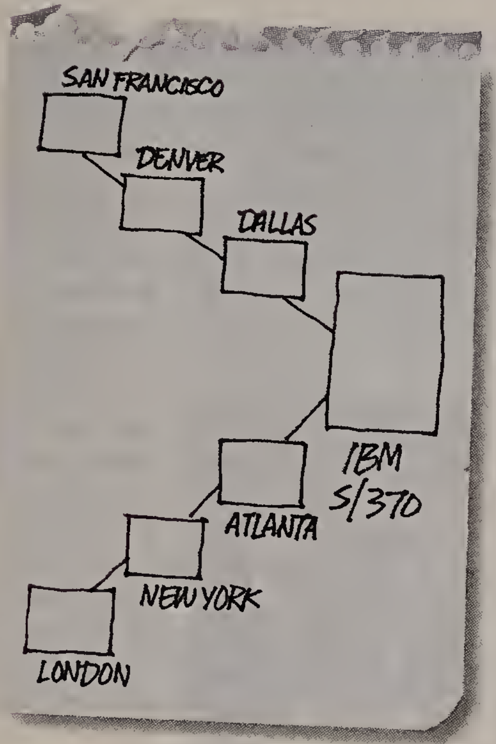

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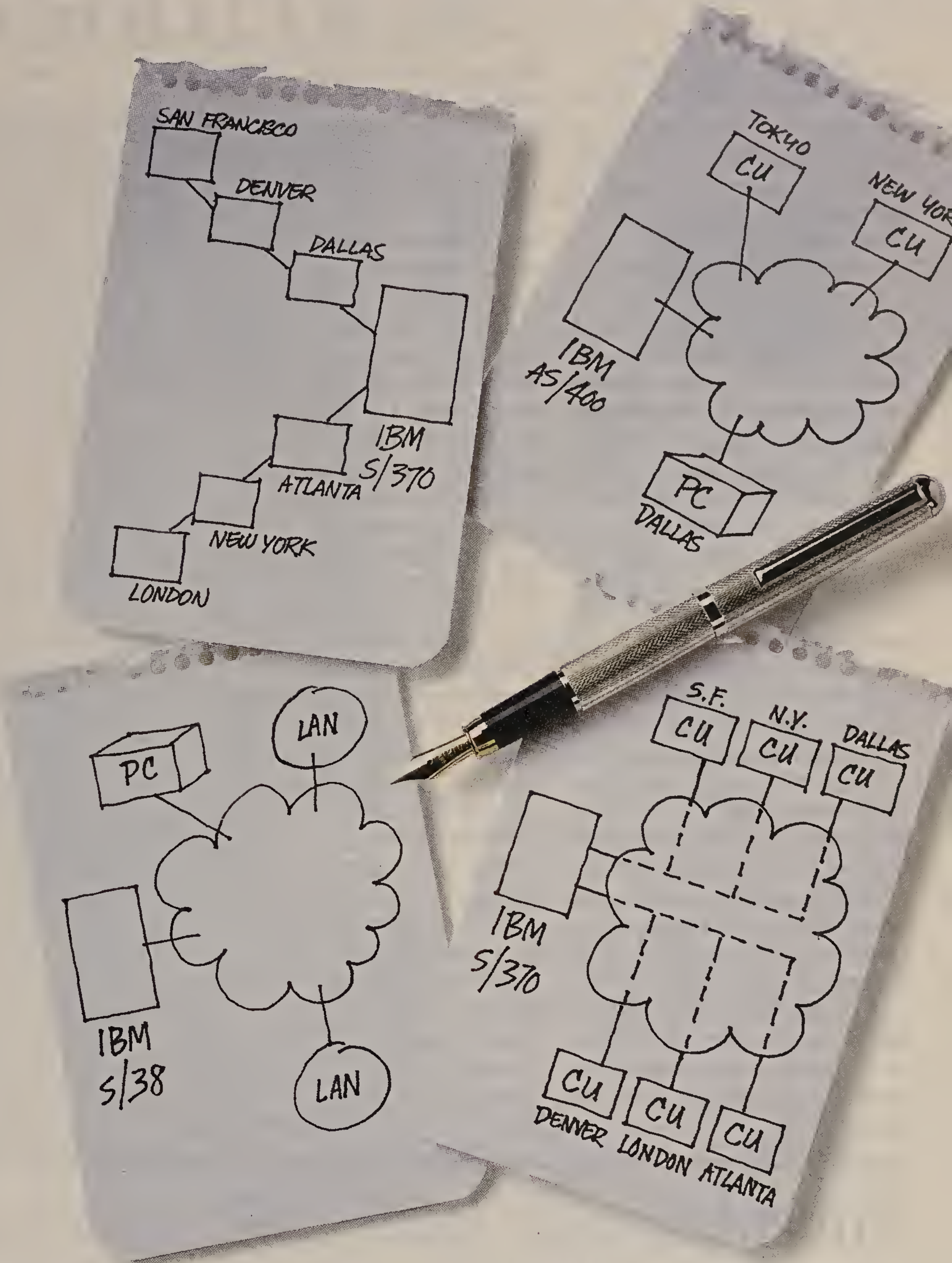

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Federal court may order FCC to reexamine Tariff 12

May overturn FCC's approval of custom net deals.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — A U.S. appeals court may be poised to overturn the Federal Communications Commission's decision allowing AT&T to offer Tariff 12 custom network deals.

A three-judge panel of the U.S. Court of Appeals for the District of Columbia Circuit last week heard final arguments in an appeal of that FCC decision filed by the Independent Data Communications Manufacturers Association, Inc., MCI Communications Corp. and US Sprint Communications Co. in November 1989.

Two of the judges indicated that they agreed with the appellants' arguments that the FCC erred in reaching its Tariff 12 decision and asked attorneys to explain the consequences of sending the matter back to the commission for reconsideration.

If the FCC's April 1989 decision is overturned by the court, the commission will have to reopen its investigation of the controversial tariff, a move that would cast a pall of legal uncertainty over the nearly 65 Tariff 12 deals AT&T has filed to date.

Existing Tariff 12 customers would likely be allowed to continue receiving service under their contracts while the investigation is under way.

The appeal is based largely on the question of whether Tariff 12 allows AT&T to discriminate among customers of similar services, which is prohibited by the Communications Act of 1934. In its ruling, the FCC found that Tariff 12 was substantially different from AT&T's other offerings.

The parties appealing the decision say the only difference among the service offerings is the lower price of services provided under Tariff 12. They claim that the FCC's review was superficial and it failed to pinpoint any material differences between Tariff 12 and existing services.

John Ingle, deputy associate general counsel for the FCC, told the judges that Tariff 12 packages stand apart from other offerings because AT&T provides a substantial level of coordination in designing and managing the network. He added that Tariff 12 packages are also different due to the fact that the terms and commitments are fixed.

But MCI's attorney, Anthony Epstein, questioned whether AT&T's coordination role in Tariff 12 is any different than the role AT&T has always played in helping customers tie services from separate tariffs into one network. "That [help has] happened before Tariff 12 and after Tariff 12; the only thing that changed was price," Epstein said.

The judges seemed convinced by the argument that the primary difference between Tariff 12 and component services is cost. This puts the FCC in a precarious legal position because earlier cases have found that pricing alone does not make a service unique.

"You make a powerful argument that the FCC took into account cost, which our opinion [from a previous case] says they cannot do," U.S. Circuit Judge Laurence Silberman told MCI's Epstein.

"[It] would be utterly absurd to say it's not the same service [just] because it's offered at a different price," Silberman told Ingle later in the proceeding.

U.S. Circuit Judge Harry Edwards also told Ingle, "It appears that the commission relied on [pricing], and now you're trying to back away from it."

David Carpenter, an attorney for AT&T, argued that price was not the key difference. "The argument that the FCC relied on price differences is just false," he said. "Customers say over and over again that these are two fundamentally different ways of doing business."

He agreed with the FCC's finding that the fixed nature of the contracts, with term and volume commitments, makes Tariff 12 different. In addition, Carpenter said users were more concerned with rate stability under Tariff 12 than lower prices.

Silberman responded by saying, "You don't mean to say that a customer would take a stable

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Timeplex adds ISDN link, upgrades TimeView/2000

By Paul Desmond
Senior Editor

NEW YORK — Timeplex, Inc. last week introduced net management enhancements for its Link+ family of T-1 multiplexers and an ISDN gateway that works with any vendors' equipment.

Timeplex's ISDN Gateway Server (IGS) is a stand-alone multiplexing and conversion device designed to let users attach an array of voice and data communications equipment to an Integrated Services Digital Network Primary Rate Interface (PRI).

The company said the IGS will enable customers who have built private T-1 backbones to supplement the networks with public switched ISDN facilities, creating hybrid nets.

The IGS comes in two models. The Model 16, which uses the same chassis as Timeplex's microLink/2+ multiplexer, supports up to four I/O modules; the Model 44 uses the miniLink/2+ chassis and supports 11 I/O modules.

The number of data or voice channels supported varies depending on the modules used, but Timeplex said that up to 96 local channels can contend for the 23 64K bit/sec bearer channels in the PRI link.

All the I/O modules are the same as those supported by the Link+ multiplexer family, said James Babcock, Timeplex's vice-president of product management. That will make it easier to incorporate the function of the IGS into the Link multiplexer.

Some competing vendors, including General DataComm, Inc. and Newbridge Networks, Inc. — which offers a proprietary D channel on its PRI link — have opted to integrate ISDN support directly into the multiplexer.

Bob Kinderlehrer, senior product marketing manager at Timeplex, said that while the company intends to integrate PRI support into the Link+ family, it saw the need to offer the IGS in the interim. The product can also be employed by users with no Timeplex equipment, he added.

James Fiedler, a Timeplex executive vice-president, said he expects the product to be used by carriers to offer ISDN services and to be resold by carriers as part of an ISDN package.

The IGS has been successfully tested for compatibility with central office switches from AT&T and Northern Telecom, Inc. In addition, it has passed ISDN testing with a number of state-run telephone companies, including Japan's, Fiedler said.

Scheduled for availability in November, the IGS Model 16 ranges from $12,500 to $19,500, depending on configuration, while the Model 44 is priced between $15,000 and $24,000.

TimeView face-lift

Timeplex also announced that its TimeView/2000 net management system for the Link+ multiplexer family will now run on a Sun Microsystems, Inc. Scalable Processor Architecture (SPARC) workstation. The SPARC platform will provide 30% to 100% faster processing than the Sun 386i currently used to support TimeView/2000, Babcock said.

The increased power will help support future enhancements, including the ability to use multiple

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LAN vendors back group to set up benchmark tests

By Salvatore Salamone
Features Writer

DALLAS — Top LAN suppliers last week showed their support for the fledgling Performance Testing Alliance (PTA), an ad hoc group of users, vendors and testing organizations formed to develop standard benchmarking tests for LAN products.

Representatives of Banyan Systems, Inc., cisco Systems, Inc., IBM, Novell, Inc., 3Com Corp. and Wellfleet Communications, Inc. took part in the PTA's first meeting, which was held in conjunction with the NetWorld '90 show here.

At the meeting, the PTA set up task forces that will establish benchmark test suites for a variety of local-area network products, including servers, network interface cards, bridges/routers, network operating systems, and application and other tools.

The theme that echoed throughout the meeting was that users and vendors need benchmark tests that are universally accepted.

"Although there's much benchmark testing being done today, there's no way to directly compare products evaluated in different tests," said panelist Gary Gunnerson, manager of

(continued on page 8)

NW, NetWorld celebrate ENNE Award honorees

DALLAS — Enterprising network users were honored at the second-annual Enterprise Network Excellence (ENNE) Awards celebration at last week's NetWorld '90 conference here.

PHOTOS COURTESY OF BURKHOLDER PHOTOGRAPHIC

UPS' Mark Dodge (l.) accepts award from NMI's Howard Frank.

The ENNE Awards, cosponsored by *Network World* and NetWorld '90, honor companies that have improved business operations through the innovative combination of computer and network technologies.

This year's winners were selected from 175 award nominations by a 15-member judging panel that included representatives from the user, consulting and vendor communities.

User awards are bestowed in four categories based on network size.

An award is also given to a systems integrator that spearheaded installation of an outstanding network.

Pioneer Award

There is also a Pioneer Award presented to a leader in the enterprise networking industry. This year's winner was Ralph Ungermann, president of Ungermann-Bass, Inc.

Winners in the other categories were:

- Global Network Award: United Parcel Service of Paramus, N.J. UPS was nominated by Novell, Inc.
- National Network Award: CSX Technology of Jacksonville, Fla., which was nominated by itself, AT&T, Banyan Systems, Inc. and IBM.
- Regional Network Award (two winners): Aerospatiale, France of Paris and The World Bank, based in Washington, D.C. Aerospatiale was nominated by Ungermann-Bass S.A. The World Bank was nominated by Network Management, Inc.
- Single-Site Network Award: Allegheny-Ludlum Steel Corp. of Brackenridge, Pa., nominated by Westinghouse Communications. Allegheny-Ludlum Steel was also honored with an ENNE Award in 1989.

UB's Ralph Ungermann (l.) with NW President Gary Beach

- Enterprise Integrator Award (two winners): Champagne Micro Products of Baton Rouge, La., nominated by Networth, Inc., and ITT Commercial Credit Corp. of Clayton, Mo., nominated by ITT Commercial Finance.

The ENNE Awards program is coordinated by The Corporate Promotions Group, based in New York.

For more information about the program call (212) 983-4965.

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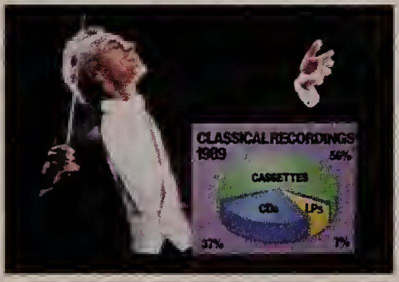

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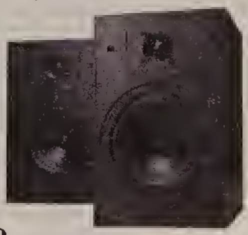

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Bevy of low-end 10BaseT products debut at NetWorld

Arcnet, LAN hub mart leaders join release march.

By Tom Smith
New Products Editor

DALLAS — Last week's NetWorld '90 here witnessed the introduction of a flurry of new unshielded twisted-pair Ethernet products from vendors including SynOptics Communications, Inc. and Cabletron Systems, Inc., both of which introduced low-end 10BaseT hubs.

In addition, Standard Microsystems Corp., a leading Arcnet interface board and hub supplier, made its entry into the 10BaseT arena with personal computer interface boards and a low-end hub device.

The announcements underscore the growing acceptance among vendors — and the demand among users — for Ethernet local-area networks that run over telephone-type wiring.

> Users can deploy the new SNMP-based LattisNet Basic Ethernet Network Management system, which supports mapping of the network.
>
> ▲▲▲

SynOptics, whose high-end LattisNet 3000 hub already supports 10BaseT, introduced two low-end hubs as well as a Simple Network Management Protocol (SNMP)-compliant management system designed to work with one of the new hubs.

The company's new LattisNet 2800 10Base-T Workgroup Concentrator has 12 ports for connection of local-area network nodes over unshielded twisted-pair cable.

It also has a single attachment unit interface (AUI) port for connection to Ethernets based on other types of media, for daisy-chaining 2800s together or for linking the 2800 to larger SynOptics hubs.

The firm's other new low-end hub, the LattisNet 2310 10Base-T Area Concentrator, supports 36 connections to 10BaseT nodes and a single AUI port for connection to other networks and hubs.

Although both new hubs can be linked to larger hubs via bridges or repeaters, the 2800 is designed primarily as a stand-alone unit and, therefore, provides minimal management functionality. It has LED indicators that allow users to perform basic monitoring.

The 2310 offers two management options. It can be controlled from SynOptics' DOS-based LattisNet Standard Ethernet Network Management system running on the LattisNet 3000. That system automatically generates a map of the topology of the entire net, while also providing physical-layer performance and diagnostic information.

Alternatively, users can deploy the new SNMP-based LattisNet Basic Ethernet Network Management system, which also supports mapping of the network, but a user must manually create that map.

SNMP allows users to perform configuration and fault monitoring, as well as receive statistics on network performance and errors.

The LattisNet 2310 and 2800 are expected to be available within 60 days.

The 2310 costs $12,495 with LattisNet Standard Ethernet Network Management and $9,995 with LattisNet Basic Ethernet Network Management. The 2800 costs $1,795.

Cabletron also introduced low-end 10BaseT hubs with and without SNMP network management. It varies from SynOptics' product, however, in the number of ports supported.

Cabletron's new hubs are the nonmanageable MRX and the manageable MRXI, both of which have 12 ports for 10BaseT LAN node connections and two ports for connecting to other media or hubs.

Cabletron's high-end Multi-Media Access Center hub already supports 10BaseT.

The MRX, like the SynOptics 2800, supports only diagnostic LEDs. The MRXI, however, can be managed using Cabletron's LANview network management system, which is offered in both DOS and Unix implementations. Both versions support SNMP.

MRX and MRXI are expected to ship within 45 days. MRX costs $1,400 and MRXI is priced at $2,200.

Standard Microsystems

Standard Microsystems Corp. rolled out its first 10BaseT offerings, including personal computer interface cards and a low-end hub.

The 8- and 16-bit interfaces, known as the 3008TP and 3016TP, are designed for Industry Standard Architecture personal computers. They cost $325 and $395, respectively, and are available now.

The company plans to introduce a 10BaseT interface for Micro Channel Architecture personal computers, the 3016TP/MC, in October. It will cost $450.

Standard Microsystems also unveiled the 3508TP, an eight-port 10BaseT hub with LEDs for diagnostics and status indicators. The hub also supports connection to other hubs or Ethernets based on other types of media. The 3508TP, available now, sells for $1,195. ◘

Correction: The following companies and products should have been including in the article on voice messaging ("Voice mail systems save users time and money," *NW*, Aug. 27).

Voicemail International, Inc., of Santa Clara, Calif., offers Voicemail II, a stand-alone voice-messaging system compatible with major PBX and Centrex switches. The system accommodates up to 24,000 voice mailboxes, has a maximum greeting length of 30 minutes and handles as many as 256 simultaneous users. The unit stores up to 1,000 hours of messages and stamps each message with the time and date. Other features allow users to broadcast messages to multiple extensions, tag a call as urgent and activate pagers when a message is received. Voicemail II prices start at $55,000.

VMX, Inc., of San Jose, Calif., offers the VMX 5000 stand-alone voice-messaging system, compatible with most major PBXs. The VMX 5000 supports up to 30,000 mailboxes, has a maximum greeting length of five minutes and accommodates a maximum of 64 simultaneous users. System features include date and time stamping, broadcast messages, delayed delivery and pager notification. Pricing starts at $100,000.

NET makes another run at T-1 mart with ADNX line

By Bob Brown
Senior Editor

REDWOOD CITY, Calif. — Having misfired on its first attempt to penetrate the market for low-end T-1 multiplexers, Network Equipment Technologies, Inc. (NET) is ready to try again with the expected introduction today of a new lower priced "feeder mux."

The new Access Digital Network Exchange (ADNX)/48 Integrated Access Manager is said to be the first in a series of offerings under the newly formed ADNX product line. The ADNX/48, which supports a maximum of two T-1 trunks, is designed to let users extend their networks to remote company locations.

> "The ADNX/48 does what the IDNX/10 was supposed to do," Cochran said.
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Although the company says the ADNX/48 is intended to complement the more expensive low-end Integrated Digital Network Exchange (IDNX)/10 introduced in April 1989, analysts say the ADNX/48 is essentially a replacement for that box.

"The ADNX/48 does what the IDNX/10 was supposed to do," said Rosemary Cochran, a principal at Vertical Systems Group, a Dedham, Mass.-based consulting and market research firm. "It fills a deficiency that NET had."

NET has licensed the technology and purchased the manufacturing rights for the ADNX/48 from Coastcom, a Concord, Calif.-based firm.

The ADNX/48 can be configured to support a single 64K bit/sec wide-area network link or as many as two fully loaded T-1 lines. On the local side, the ADNX/48 supports a wide range of voice and data interfaces.

The ADNX/48 is not based on NET's proprietary architecture, which means that it can serve as a feeder node into other vendors' T-1 backbones as well.

It also means that the ADNX/48 cannot be managed under NET's existing network management system. ADNX/48 net management is expected to be integrated into the IDNX management system early next year, according to Dennis Tsu, director of marketing for NET's access products division.

The ADNX/48 both overlaps the capabilities of the IDNX/10 and complements that multiplexer, said David Owen, director for product marketing at NET.

"The IDNX originally was targeted to extend IDNX backbones to feeder locations, and because of that, it can only talk to IDNX backbones," Owen said. "ADNX

(continued on page 63)

Informix offers data base software for NetWare 386

By Tom Smith
New Products Editor

DALLAS — Informix Software, Inc. announced at NetWorld '90 in Dallas last week a new release of its data base server software that runs under Novell, Inc.'s NetWare 386.

OnLine for NetWare 386, an SQL-compliant NetWare Loadable Module, is the first data base server designed to exploit the latest release of Novell's network operating system, Informix said.

Like the existing OnLine product, which ran exclusively on Unix servers, the latest release supports several existing Informix software packages, such as spreadsheets running on local-area network nodes that communicate as clients with the server.

Earlier versions of NetWare were designed more for file sharing applications rather than client/server applications, according to Carol Lamberson, product manager at Informix.

NetWare 386's 32-bit architecture and multithreading capabilities make it the first version of the network operating system suited for mission-critical data base applications such as on-line transaction processing, Lamberson said.

Because NetWare 386 is multithreading, it allows multiple users to share the same data base server process. Older versions of NetWare, by contrast, were single-threaded, meaning each server process only benefits one user, with the CPU juggling processes to accommodate multiple users.

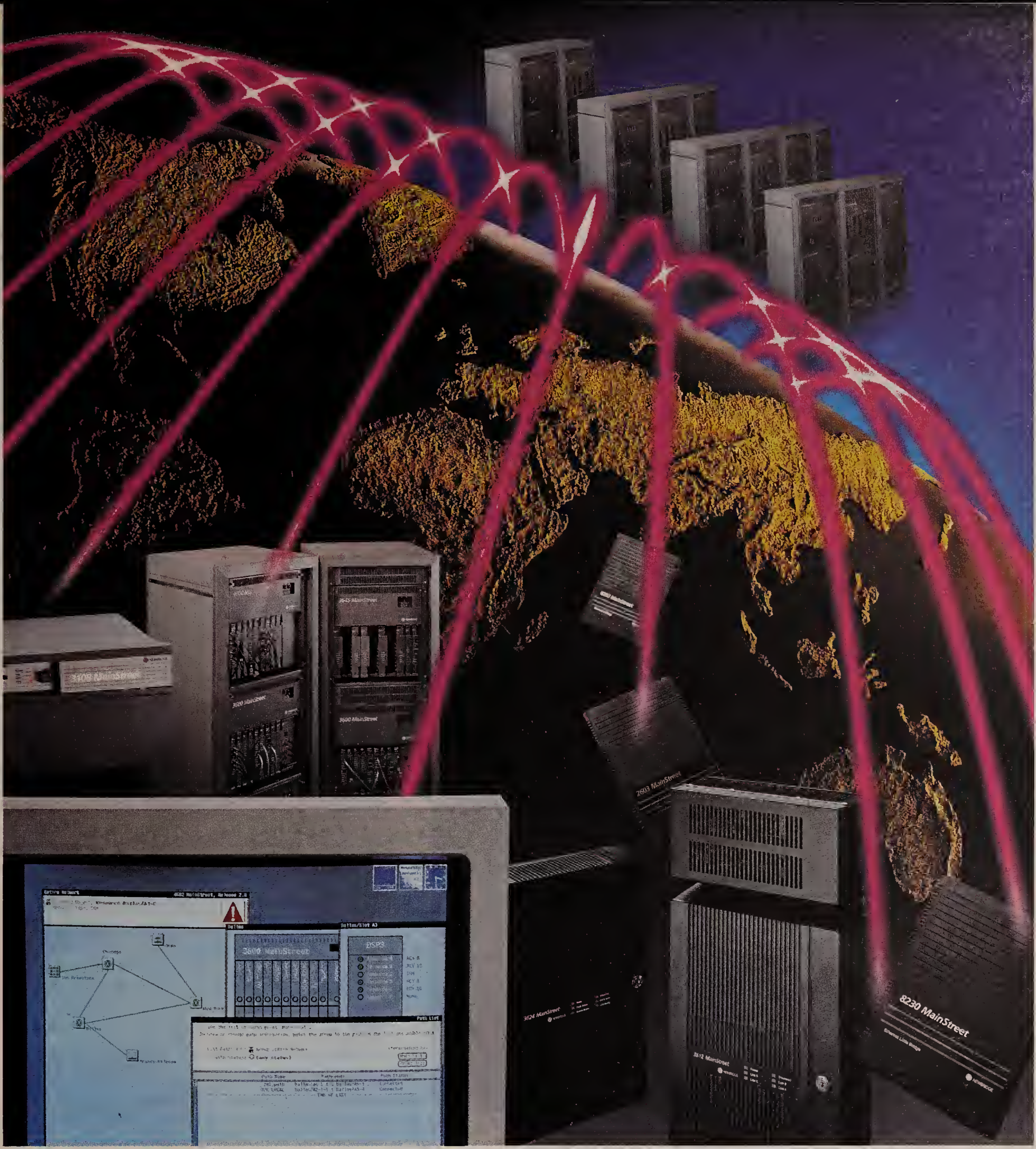
Because it is designed for mission-critical applications, OnLine for NetWare 386 supports high-reliability features including disk mirroring and automatic recovery from failures.

Among the client software that can access OnLine for NetWare 386 files is Informix's Wingz graphical spreadsheet package, which can pull data from the data base directly into a spreadsheet file.

Wingz is compatible with all major graphical user interfaces, including Microsoft Corp.'s Microsoft Windows and OS/2 Presentation Manager, as well as Apple Computer, Inc.'s Macintosh and Motif for Unix platforms.

One existing client software package, Informix-Star, is bundled with Informix OnLine for NetWare 386. Informix-Star lets users access data stored on many OnLine data bases. For example, a NetWare client can retrieve OnLine data from multiple NetWare 386 servers or NetWare 386 and Unix-based OnLine servers.

The software, available in December for $4,995, will support an unlimited number of users. ◘



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See The FAXNeT Form on Page 17

Vendors back group for benchmark tests

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Gannett Company, Inc.'s information center. "Users must interpret the test results to gain insight into performance issues."

Because vendors test products differently, users often cannot determine how a product will perform in their LAN environments. The PTA said it hopes to eliminate this problem by developing a suite of tests that will be distributed with a detailed description of testing methodologies. That will enable users to assess vendor claims more accurately and conduct effective testing on their own.

According to Jean Voldman, program manager for client/server computing in the enterprise systems division at IBM, the PTA is on the right track.

Voldman said the PTA could "even the playing field" by helping to shape a consensus on performance tests. "This would allow products to be compared on an equal basis, meaning performance would not depend on 'specsmanship,' " he said.

Since the ultimate goal of the PTA is to find performance bottlenecks, many panelists said they believe the tests should be conducted under heavy traffic loads and not "real-world" conditions, such as those typical of an office environment.

"People have to put real-world tests into perspective," said Drew Major, a senior systems architect at Novell. "If you did a test of a Volkswagon and a Porsche, where both operated under real-world conditions with a maximum speed of 55 miles per hour, the Porsche may complete a short course slightly faster than the Volkswagon due to it's superior acceleration. However, if the two cars were allowed to perform at their full capacity, the results would be quite different."

The analogy is applicable to LAN testing. "Tests with four personal computers on a LAN sometimes don't give users an idea of the system's capacity," Major said. "You have to put the pedal to the metal to find performance bottlenecks."

One challenge the PTA faces is to design the benchmark tests in such a way that vendors cannot fine-tune their products to beat the test criteria. This has always been an issue in benchmark testing.

The way to prevent that product tweaking is to define every aspect of the test criteria and not allow any aspect to be changed during testing, said Scott Bradner, technical associate at Harvard University and chairman of the Internet Engineering Task Force's Benchmark Methodology Working Group (BMWG), which is defining terminology and test criteria for interconnection devices.

Ed Curry of Lone Star Evaluation Laboratories, one of the PTA's organizers, said the group lacks funding and an organizational structure. Those and other issues will be discussed at the PTA's next meeting, scheduled for NetWorld '91 in Boston next February. Some of the group's organizers will meet at next month's INTEROP 90 in San Jose, Calif., to set an agenda for the February PTA meeting. ◘

Houston 30 group to join COS

continued from page 2

barriers impeding progress toward open systems. Ideas were consolidated into 10 "action items" that the group will soon begin to address.

These items include: defining open systems; establishing a process for identifying user requirements in the open systems arena; fostering research into open systems; establishing executive-level educational programs about open systems; and developing a strategic planning methodology and generic business case to help firms justify the move to open systems.

The group elected Bud Huber, manager of advanced networking integration at Hughes Aircraft Co. in Long Beach, Calif., to serve as chairman. Don Simanton, assistant director of information resources management for the National Aeronautics and Space Administration at the Johnson Space Center in Houston was nominated vice-chairman.

According to Huber, joining COS will enable the UAOS to focus its attention on overcoming the obstacles to open systems without being weighed down by administrative tasks. "We needed to put to bed how we were going to manage our administrative needs or this group would have died," Huber said. "It was taking so much time and energy, it was preventing us from making progress."

UAOS decided to join COS because its organizational structure would enable UAOS to retain its independence, Huber said. Like the MAP/TOP Users Group, which joined COS earlier this year, UAOS will be a Requirements Interest Group within COS. As such, UAOS will be given wide latitude to set its own agenda. The only stipulation is that UAOS inform COS leadership prior to making a statement that conflicts with COS' stated objectives.

For its part, COS will benefit from the addition of UAOS by drawing more users into the requirements definition process, said Marshall Cain, director of member services at COS.

There are three classes of membership in UAOS: regular members, observers and advisors. Only regular members have full voting rights. Annual dues are $25,000 for regular members and $1,500 for observers. Advisors won't have to pay dues.

In addition, regular members of UAOS will automatically be considered full-fledged COS members.

UAOS plans its next plenary meeting for early 1991. It also plans to sponsor a one-day forum on open systems for senior executives sometime next year. ◘

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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS AND FINANCIALS

Worth Noting

The worldwide market for wireless data communications equipment and services will exceed $500 million in 1990, according to a new report by International Resource Development, Inc., a New Canaan, Conn.-based market research firm. The market is expected to grow to more than $2 billion by the end of the decade.

People & Positions

Oracle Corp. recently named **Michael Fields** president of **Oracle USA** in a move that analysts say is tied to the company's recent announcement that it will report its first-ever quarterly loss. That loss is expected to be reported for the period ended Aug. 31.

Fields will replace **Gary Kennedy,** who was appointed to head up Oracle USA during the company's May reorganization. Kennedy is expected to stay on as chairman of the Oracle Complex Systems subsidiary.

Previously, Fields was vice-president of U.S. Field Sales and Consulting for the Redwood Shores, Calif.-based data base software vendor.

Motorola, Inc.'s board of directors last week announced the appointment of two **Codex Corp.** officers as Motorola vice-presidents.

John Thibault, senior vice-president and general manager for the product division of Codex, will now also serve as corporate vice-president of the Information Systems Group at Motorola.

Gerald Murray, vice-president and general manager of the International Division at Codex, now also serves as corporate vice-president of

(continued on page 10)

Microsoft group to help users with PC integration

Users take advantage of ITIS experts' knowledge.

By Maureen Molloy
Staff Writer

REDMOND, Wash. — Microsoft Corp. recently announced the formation of a new consulting service to help corporations integrate personal computing technologies and client/server architectures into existing networks.

Consultants with the Information Technology Integration Services (ITIS) group will offer MIS departments and systems integrators expertise in bringing business applications together.

Microsoft's Robert McDowell

"What's important to these customers is integration," said Collins Hemingway, a Microsoft spokesman. "What ITIS will do is get different applications from different vendors to communicate with one another and work in a graphical environment like Windows or OS/2.

"When a company is installing a multimillion-dollar custom application, they want someone around who can make the difference between saying that everything's fine [and saying that] two or three flaws might need to be fixed later on," Hemingway explained.

Since mission-critical applications are increasingly being moved from mainframes and minicomputers to personal computers, and since more personal computers are being networked, even technical users and MIS professionals are beginning to seek help with applications.

To head ITIS, Microsoft has hired Robert McDowell, formerly a partner and national director of strategic business systems consulting at Ernst & Young.

The group currently consists of members of Microsoft's prod-

(continued on page 10)

INDUSTRY BRIEFS

Olivetti to distribute NetFRAME superservers. NetFRAME Systems, Inc. last week announced that it will sell its superserver offerings in Australia, Canada and Europe on an OEM basis through Ing. C. Olivetti & Co., S.p.A.

The NetFRAME products will be distributed by Olivetti Systems & Networks, the Olivetti company that deals in data communications equipment, as well as through authorized Olivetti resellers on a country-by-country basis. The agreement is worth an estimated $200 million over three years, according to a NetFRAME spokeswoman.

NetFRAME, which is based in Milpitas, Calif., introduced its products a year ago and has been shipping them since late last year. Olivetti is based in Ivrea, Italy, and is among the world's 10 largest computer companies.

EDS to buy half of System One. Electronic Data Systems Corp. (EDS) last week announced after months of delays that it has reached definitive agreements to acquire half of the System One Corp. computer reservation system at a cost of $250 million. System One is owned by Continental Holdings, the parent company of Continental Airlines Corp. and Eastern Air Lines, Inc.

The agreements call for the formation of a new entity called System One/EDS Partnership. Under the agreements, EDS will provide information technology services to Continental, Eastern Air Lines and System One/EDS Partnership.

EDS disclosed in February that it planned to buy half of System One, which is expected to generate about $4 billion in revenue for the company during the next 10 years.

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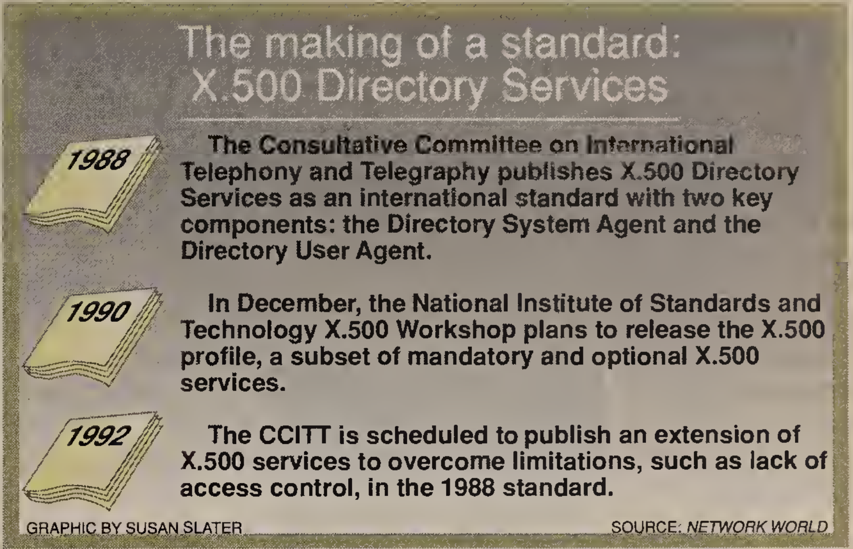
The making of a standard: X.500 Directory Services

The Consultative Committee on International Telephony and Telegraphy publishes X.500 Directory Services as an international standard with two key components: the Directory System Agent and the Directory User Agent.

In December, the National Institute of Standards and Technology X.500 Workshop plans to release the X.500 profile, a subset of mandatory and optional X.500 services.

The CCITT is scheduled to publish an extension of X.500 services to overcome limitations, such as lack of access control, in the 1988 standard.

GRAPHIC BY SUSAN SLATER

SOURCE: *NETWORK WORLD*

Vendors dare to be first in X.500 mart

Unisys, Siemens hope to take early lead with products based on the evolving X.500 standard.

By Ellen Messmer
Washington Correspondent

Although the X.500 Directory Services standard isn't fully stable, a few vendors are gambling with early product releases based on their interpretations of how the standard will evolve.

Unisys Corp. plans to take an early lead in the X.500 market by becoming the first North American vendor to release a standards-based directory services product in November. Unisys trails only West Germany's Siemens AG, which released its X.500 product, DIR-X, for sale in Europe last June. Siemens does not currently sell any software in the U.S.

Because the Open Systems Interconnection X.500 standard is evolving rapidly, both Unisys and Siemens acknowledged that they will have to devote resources to updating their products.

X.500 Directory Services is based on the CCITT 1988 recommendations, later adopted as International Standards Organization (ISO) Standard 9495. It is designed to work as a global directory enabling users to send messages and documents across enterprisewide networks once OSI is widely accepted.

Expanding the scope

The X.500 directory search capabilities are used in conjunction with X.400 messaging and File Transfer, Access and Management (FTAM) applications. X.500 will enable users to expand the scope of these applications far beyond any comparable proprietary tools found today, according to a recent report from The Yankee Group, a Boston-based consultancy.

Phil Wimpenny, product development manager for OSI products at Unisys, said the Unisys product will be sold as two separate components, the Directory System Agent (DSA) and the Directory User Agent (DUA), which will run on the U-6000 series minicomputer.

The DSA maintains the directory's data base, and the DUA provides an application interface.

X.500 may be implemented as a centralized or distributed data base, Wimpenny noted. In a distributed application, DUAs can remotely access and exchange information with DSAs on an OSI network.

Unisys decided to release its product before the NIST X.500 Workshop of vendors and users finalizes the X.500 profile.

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Using one of three basic methods — chaining, multicasting or referral — a DSA can forward the request to another DSA until the desired address is found.

Unisys decided to release its X.500 product before the National Institute of Standards and Technology (NIST) X.500 Workshop of vendors and users finalizes the X.500 profile, which is scheduled for completion in December.

Like most standards, the 1988 X.500 standard outlines a broad set of services. The X.500 Workshop's goal is to define a specific subset of mandatory and optional

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MCI veteran leaves carrier to begin consulting firm

Northeast division head charts a new course.

By Bob Brown
Senior Editor

NEW YORK — Nathan Kantor, an 18-year MCI Communications Corp. veteran who has headed MCI's successful Northeast division since 1985, recently announced his resignation and plans to start up a telecommunications consulting firm.

Nathan Kantor

Kantor, who will stay on with MCI until year end to ensure a smooth transition for his successor, said he hopes to build on his experience in dealing with some of MCI's largest customers.

As president of the Northeast division, Kantor oversaw MCI's dealings with Merrill Lynch & Co., Inc., which last year signed a five-year, $150 million contract for worldwide voice and data network services. In addition, he has served as president and chief operating officer of MCI International, Inc. and vice-president of national field operations.

Kantor said he plans to launch his consulting company in the first quarter of 1991 and hopes to have 50 employees from the start.

"I want to provide expert services to those companies looking to expand their networks on a global basis," Kantor said. "What I want to do goes beyond what I would consider traditional consulting services by really helping companies reduce the cost of running their networks and getting the maximum value out of them."

Kantor was vague about exactly what will make his consulting firm different from existing consulting practices. But he said he wants to help users develop strategies associated with outsourcing, facilities management, capital investments and global expansion.

"I have the experience in terms of implementing projects and making them happen that others don't have," Kantor said.

The timing for this new venture is right despite MCI's continued success in battling AT&T for big customer business, he added.

"I think the current economic situation will help stimulate the opportunities for me," Kantor said. "It's a difficult economic situation, but companies have got to look around and say, 'How can we make the kinds of spending cuts that are necessary to survive while at the same time expanding globally?' That's where I think I can help."

Outsourcing opportunities

According to Kantor, planning outsourcing strategies with users is one service on which he may wind up spending a significant amount of time, given the country's worsening economic situation.

"If the economy continues to soften, you're going to find more people beginning to look at outsourcing as an alternative," he said.

Will Kantor — given his MCI background — be able to give users objective advice when it comes to choosing a telecommunications vendor for outsourcing or other network projects?

"Clearly, this is something I'll need to be sensitive about," Kantor said. "But if you look at [people] in the consulting business, they probably are steeped with AT&T tradition. If there is any refreshing viewpoint in the industry, it will certainly be mine."

People

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the International Division of Motorola's Information Systems Group.

Evernet Systems, Inc., a Los Angeles-based systems integrator, last week named **Michael Caglarcan** to head up the company's newly formed National Accounts Group.

As vice-president of national accounts and marketing, Caglarcan will coordinate the actions of Evernet's 13 branches. The National Accounts Group will also be responsible for developing networking strategies and applications needed by users in the financial, health care, legal and other markets.

Previously, Caglarcan was a division vice-president at Electronic Data Systems Corp.

Bell Atlantic Corp. last week announced that **Regis Filtz** has been appointed vice-president of the carrier's new Interexchange Access Services organization, a group responsible for making Bell Atlantic the local carrier of choice for interexchange and cellular carriers.

The new Bell Atlantic organization integrates interexchange carrier market management, sales, product planning, product implementation and customer contact. Previously, these functions were handled by several organizations.

Filtz was formerly the vice-president for central office planning on Bell Atlantic's network services staff.

Group to help with integration

continued from page 9

uct development team as well as other senior-level technical personnel. The staff will work on-site with systems integrators or a company's MIS group to provide assistance in planning, implementing and integrating Microsoft systems, applications and communications products into a firm's information infrastructure.

Unlike Microsoft's other support services — Product Support Services and Microsoft University — which are largely product-specific, Hemingway said ITIS is primarily geared toward system and network services.

In conjunction with providing superior service to corporate customers, Microsoft is also aiming to leverage its expertise, Hemingway said.

Microsoft is aiming to leverage its expertise.

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"If systems integrators get intensive training on OS/2 or Windows, they'll be more likely to use Microsoft's operating systems in future projects, and naturally, that's something we'd like to see," he said.

ITIS services will be available internationally. In the U.S., the group is organized into Eastern and Western divisions. In Europe, ITIS has headquarters in Reading, England, and plans to expand into Germany first before branching out into other European countries.

ITIS also plans to develop an executive education and planning service.

Industry Briefs

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The purchase represents the largest commitment by a corporation outside of the airline industry to provide reservation and information services for the airlines.

The agreement still must be approved by the federal bankruptcy court overseeing Eastern Air Lines.

British Telecom adds bridge/router products to T-Net line. British Telecommunications PLC last week said it will expand its T-Net local-area network product line by reselling a line of bridge/router products from Advanced Computer Communications, Inc. (ACC) in Santa Barbara, Calif.

The ACC bridge/router products support LAN interconnection via X.25 and private circuits. They also support both Digital Equipment Corp.'s DECnet and Transmission Control Protocol/Internet Protocol.

Together, ACC and British Telecom are working to upgrade the internetwork products to enable them to support additional protocols, including Open Systems Interconnection protocols, according to Gary Krall, ACC's director of marketing.

ACC has already upgraded its offerings to support the European X.21 standard for connection to public switched networks, he said.

The two companies are also working to ensure that the ACC products can be managed under British Telecom's OSI-based Concert integrated network management system, which is expected to be delivered in the second half of next year, Krall said.

While the ACC/British Telecom agreement allows for British Telecom to distribute ACC's products worldwide, it is expected that British Telecom will initially distribute the products mainly in the U.K., said Robert Streeter, manager of British Telecom's T-Net internetworking group.

Ask Computer works special deal to buy Ingres. Ask Computer Systems, Inc. last week agreed to acquire data base software maker Ingres Corp. in a four-way deal that also involved Hewlett-Packard Co. and Electronic Data Systems Corp. (EDS).

Ask Computer, a maker of management systems for manufacturing companies, announced that it raised cash to buy Ingres by signing a definitive agreement whereby HP and EDS agreed to acquire $60 million of Ask Computer's common stock. Under the agreement, EDS will hold 19.7% of Ask Computer and HP will hold 10%.

According to Sandra Kurtzig, Ask Computer's chief executive officer, the agreement will combine Ask Computer's "application expertise, Ingres' data base leadership and [HP's and EDS'] worldwide system integration ability to provide global enterprisewide solutions."

In February, Ask Computer began using Ingres software tools and data base products to develop a new manufacturing information system for computer networks.

Vendors dare to be first in mart

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services that vendors can commonly implement to provide interoperable X.500 products.

Unisys, one of about 25 participants in the X.500 Workshop, said it is confident that it knows where the profile is headed.

Users, such as those who banded together in the Houston 30 users group, have criticized vendors for not bringing open systems products to market more quickly ("Open systems group rips users, vendors," *NW*, Sept. 3). But vendors working on OSI products are faced with problems not usually encountered with proprietary systems.

"It's a different way of doing business," said Joseph Arrington, Unisys' systems group product manager. The OSI environment requires that vendors learn to work together in an official forum, as opposed to working in secrecy.

Patience is a virtue

Vendors must be patient during the standards-making process. In the case of X.500, vendors say they are watching for the 1992 CCITT publication of X.500 extensions because the 1988 version has serious limitations.

The 1992 extensions to X.500 are expected to include access control and replication functions, according to Jennifer Pigg, a senior analyst for The Yankee Group.

Access control restricts user access to the directory's data base across the network, while replication allows address duplication and distribution among the DSAs across the net.

Unisys has included some access control in its product, but Siemens has gone even further. It has already included access control, replication, caching and network management features in its DIR-X product.

Walter Heldman, manager of software development at Siemens, said his company decided it needed to move ahead of the standards for practical reasons.

"As soon as you start to make a real product, you realize you need features not set by the standards at that time," Heldman said. Since Siemens is active in the standards process in Europe, the company can anticipate where the standard is headed, he added.

Siemens' decision to release a product early has paid off in at least one way. In May, the Open Software Foundation, a nonprofit company selecting open systems technologies for the industry, chose DIR-X as part of its Distributed Computing Environment.

NYNEX INTERNATIONAL WORKS IN PROGRESS

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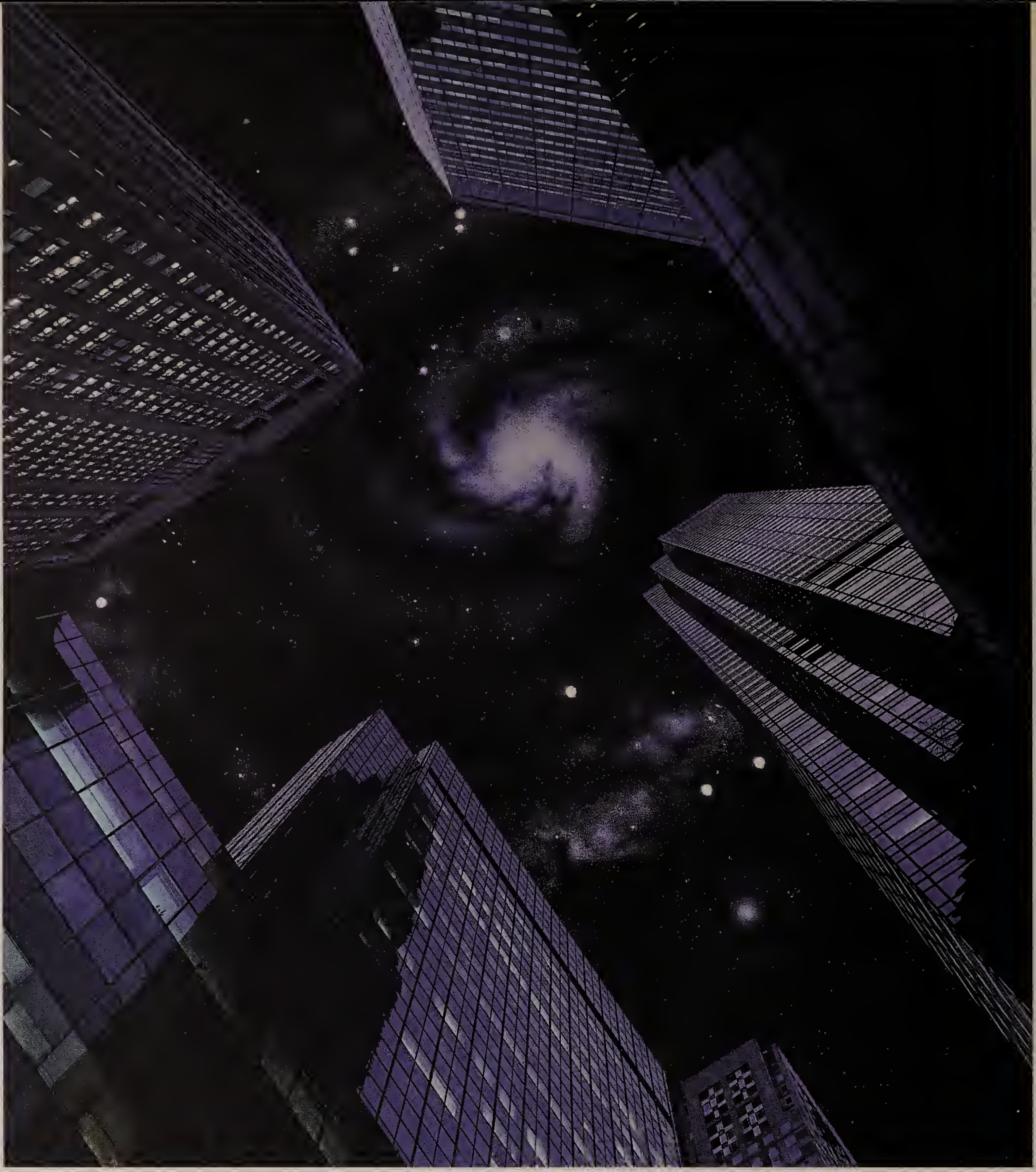

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Worth Noting

AT&T has filed Tariff 12 deals for more than 65 companies, representing about $750 million in minimum annual charges since it landed E.I. DuPont de Nemours & Co. as its first Virtual Telecommunications Network Service customer in September 1987.

Carrier Watch

Neiman Marcus recently rejected an AT&T Tariff 12 proposal in favor of a deal from **MCI Communications Corp.** for Vnet virtual network, 800, data transmission and network management services.

The upscale department store chain signed a three-year, $12 million contract with MCI that replaces AT&T as the firm's primary long-distance carrier.

Under the arrangement, MCI will build a Vnet linking Neiman Marcus corporate headquarters in Dallas with 24 stores scattered across the nation, its national distribution center in Carrollton, Texas, and its data center and mail-order distribution center in Irving, Texas.

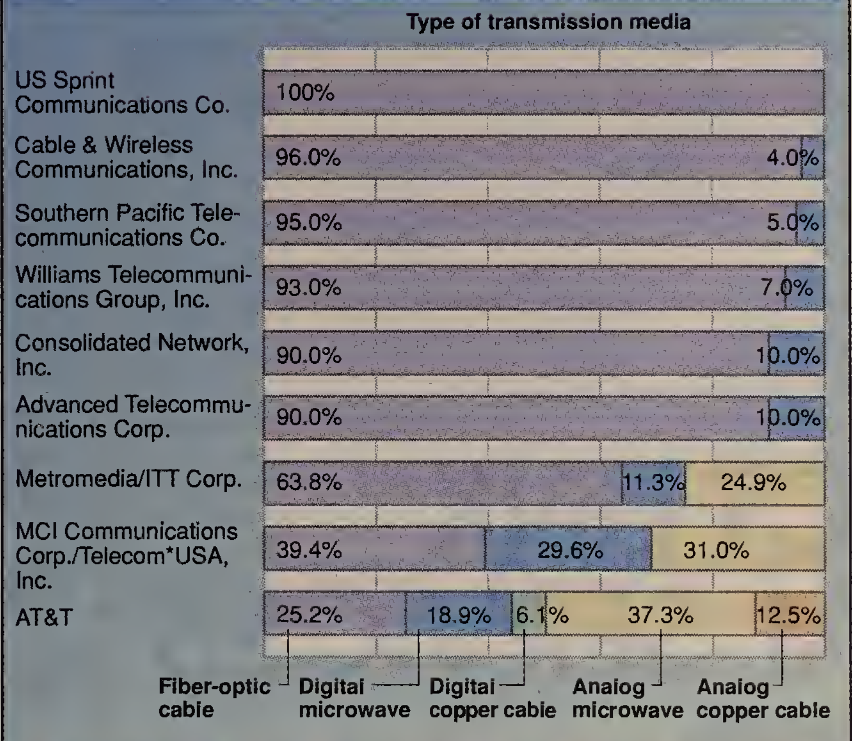
MCI will also help Neiman Marcus integrate its MCI View and General Datacomm, Inc. net management systems into IBM's NetView network management system. MCI has assigned Neiman Marcus a full-time on-site technician to help manage the network.

MCI will build the retailer a digital microwave backup network linking key Neiman Marcus sites in the Dallas metropolitan area for use in the event of a local-loop failure or an MCI outage.

The carrier will also provide 800 service in support of Neiman Marcus' worldwide mail-order operations. In addition, it will carry all voice,

(continued on page 14)

Interexchange carrier network makeup



GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: TELECHOICE, INC., MANCHESTER, CONN.

AT&T retracts Tariff 15 offer to Rohm and Hass

Sudden action comes two weeks after filing.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — In an abrupt and unexplained turnaround, AT&T last week withdrew its 11th Tariff 15 offer to Philadelphia-based Rohm and Hass Co.

The deal, filed only two weeks ago, would have given the specialty chemical company a 90% reduction on the fee for calls placed using a remote access code to a Software-Defined Network.

AT&T has only withdrawn one other Tariff 15 deal — the offer to First Commerce Corp., a Louisiana-based bank holding company. That withdrawal came amid questions about the deal's legality and uncertainty as to whether the Federal Communications Commission would approve it.

Of the other 10 Tariff 15 arrangements filed to date, only one customer is receiving service, Resorts Condominiums International, Inc. The remaining arrangements are still pending FCC action. .

Tariff 15 allows AT&T to offer discounts to customers that have been approached with off-tariff deals by rival carriers. AT&T's competitors claim they are not filing off-tariff deals and allege that AT&T's discounted offerings violate provisions of the Communications Act of 1934.

Still pushing

Although AT&T gave up on its deal for Rohm and Haas last week, it continued to push the FCC for the right to offer a plan that would enable the carrier to compensate customers whose Tariff 15 deals have been delayed for regulatory or other reasons.

AT&T had petitioned the FCC to approve such a plan on two other occasions. The carrier voluntarily withdrew its first request amid speculation that the deal would be rejected, while its second version was found to be unlawful by the FCC because AT&T failed to provide proper supporting cost data.

> AT&T has only withdrawn one other Tariff 15 deal — the offer to First Commerce Corp.
>
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AT&T has asked the FCC to review its decision to reject the second compensation plan.

According to FCC rules, the carrier must show that all of its tariff filings will pay for themselves within a certain period of time. This rule is a check against cross-subsidies from one service to another.

In its petition, AT&T said its cost support was adequate and the FCC's decision to reject the compensation plan was based on "erroneous findings of fact" and should be reexamined. ☐

N.E. firms may build own microwave net

Users study feasibility of net that would bypass SNET, secure connections to long-haul carriers.

By Bob Wallace
Senior Editor

NORWALK, Conn. — A group of 20 large New England corporations is considering building a digital microwave network spanning three states to secure direct connections to long-haul carriers and to bypass links to multiple Southern New England Telephone Co. (SNET) central offices.

The shared microwave network would provide users with less expensive local access to SNET and route diversity that would safeguard against service outages.

Looking for options

The consortium, which includes Phoenix Mutual Life Insurance Co., Pitney Bowes, Inc. and AdVest, Inc., said SNET will not allow its members to use their own facilities to access SNET central offices and the carrier only offers diverse routing on a customer-specific basis at high rates.

Richard Kaufman, interim spokesman for the user coalition and president of Richard N. Kaufman & Associates, Ltd., a consultancy here, said the users want alternatives to SNET.

"For these users, there's only one way in and one way out, and that's through SNET," Kaufman said. The companies in the consortium are mostly located in office parks and townships served by a single central office.

> "For these users, there's only one way in and one way out, and that's through SNET."
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A spokeswoman for the Connecticut Department of Public Utility Control said it is "highly

(continued on page 14)

WASHINGTON UPDATE

BY ANITA TAFF

AT&T offers Tariff 16 deal to Air Force. AT&T recently filed its 11th service option under Tariff 16, a vehicle the carrier uses to offer discounted deals to government users. AT&T can provide services to the government at off-tariff rates due to provisions in the Communications Act of 1934 that make special exceptions for government users.

The newest Tariff 16 service, dubbed Overseas Cable Analog Service (OCAS), will provide a 9.6K bit/sec analog private line between the U.S. Air Force Headquarters South Command near Austin, Texas, and Corozal, Panama.

The deal will cost $1,920 per month, not including dedicated access charges or termination charges from the foreign telephone company.

OCAS is scheduled to take effect Sept. 19.

AT&T previously filed a Tariff 16 deal for a digital private-line service for the military. That deal, dubbed Overseas Cable Digital Service (OCDS), provides a 64K bit/sec digital private line between the U.S. Army-Air Force Exchange Service in Dallas and West Germany. The Exchange Service operates the military's system of post exchanges (PX) around the world.

Although the digital private-line deal was ultimately approved by the Federal Communications Commission, it raised eyebrows and generated criticism. Some observers said they thought it was absurd that AT&T could offer a tariff built around a single private line. The service costs $3,315, which analysts say is about half the cost of a 64K bit/sec digital private line for commercial customers.

Although OCAS and OCDS are purchased on a month-to-month basis, customers must give AT&T 90 days' notice to discontinue either service without penalty. ☐

N.E. firms may build own microwave net

continued from page 13

unlikely" that the user consortium will receive approval to build its microwave network. "They do not have an open OK to build another telephone system, and we have not received from them applications to do so," she said.

Nonetheless, the consortium has commissioned a study to look at the feasibility of building the bypass net and has hired regulatory attorney Victor Toth to support its efforts.

Edwards & Kelcey, a Livingston, N.J., engineering firm, will design the T-3 microwave network, which will offer local-loop facilities in five cities within three states and provide access to AT&T, MCI Communications Corp., New England Telephone and Telegraph Co., New York Telephone Co. and US Sprint Communications Co., Kaufman said.

The network would include microwave towers adjacent to the headquarters or a microwave antenna attached to the headquarters of each company in the group.

Jeffrey Lewis, telecommunications director for Phoenix Mutual in Enfield, Conn., said user demand for route diversity is high. "We've got to have more and cheaper diverse routing in the local loop," Lewis said. "I can have connections to 12 carriers' [points of presence], but if they all run through one central office and we lose the office, I'm dead in the water."

It is too expensive to procure a physically diverse path from SNET to link Phoenix Mutual's headquarters to a separate SNET central office, Lewis said. "The last mile is the most expensive and the most difficult part of a [link] to back up."

SNET provides diverse routing in the local loop under a customer-specific contract. The price is based largely on the cost SNET incurs for the project, a company spokesman said.

Lewis said sharing the microwave network with other users would be less expensive than acquiring access to a second SNET central office. "The more companies you bring on the net," he said, "the further you reduce the cost of diverse routes."

> Sharing the microwave network with other users would be less expensive than acquiring access to a second SNET central office.

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SDN cutover to spell savings for North Dakota

By Ellen Messmer
Washington Correspondent

BISMARCK, N.D. — AT&T last month cut over a Software-Defined Network (SDN) for the state of North Dakota that will save the state an estimated $600,000 when compared with the AT&T Megacom service it will replace.

The state signed a $1.5 million, two-year contract with AT&T for Megacom WATS service in 1989 but earlier this year, AT&T convinced the state to switch to SDN to garner greater savings.

The bulk of the savings comes from a 25% discount on SDN available to the state under AT&T's "State Calling Service" portion of Tariff 16, a new tariff for government users approved by the Federal Communications Commission in April.

Paula Loendorf, director of communications and support services at the University of North Dakota, said the state decided to go with SDN because of the savings.

She emphasized, however, that the state did not intend to extend the contract beyond the remaining year. The state will put the business up for competitive bid when the contract begins to expire, Loendorf said.

The cutover to SDN from Megacom was transparent to users, according to Loendorf. The AT&T virtual private network serves users at North Dakota's state capitol here, state agencies, the University of North Dakota and North Dakota State University.

Carrier Watch

continued from page 13

data and 800 traffic for Neiman Marcus' Horchow Mail Order, Inc. company.

Newbridge Networks, Inc. last week announced it has completed installation of a six-node global T-1/European T-1 net for **Cable & Wireless Communications, Inc.** The carrier's internal corporate network will carry voice, data, video and facsimile traffic between Cable & Wireless sites in Bermuda, Hong Kong, the U.K. and the U.S. The network uses Newbridge's 3600 MainStreet Bandwidth Manager multiplexers at key offices around the world.

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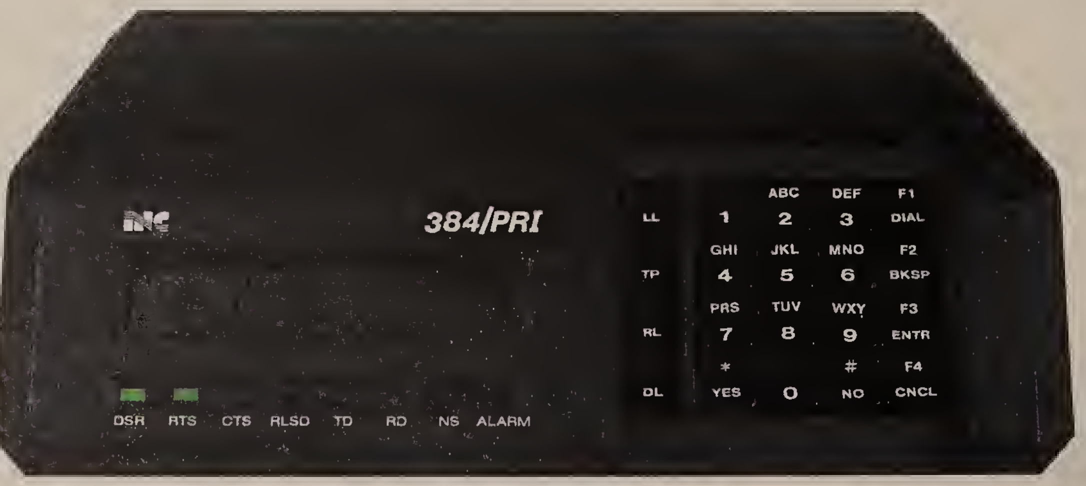

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Worth Noting

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Ellen Hancock
Vice-president and general manager
IBM's Communication Systems Division
At a recent product announcement in Poughkeepsie, N.Y.

Data Packets

The **X.400 Application Program Interface Association (XAPIA)** and **X/Open Company, Ltd.** last week jointly announced the availability of application program interfaces (API) that promise to help users and vendors write electronic mail applications that are compliant with international standards.

The two groups announced four APIs, including one for linking proprietary E-mail systems to an X.400 message transfer agent and a second that enables X.400 messaging capabilities to be incorporated into applications such as word processing and spreadsheets.

A third API enables applications to access global X.500-based directories, and the fourth is an object management API that is used by the other APIs to provide a means to manipulate complex information objects, such as messages and the results of directory inquiries.

X/Open, an international group of vendors and users committed to open systems, and XAPIA, an association of computer and communications vendors, plan to submit the APIs for approval as Institute of Electrical and Electronics Engineers, Inc. standards.

The API specifications can be ordered from Omnicom, Inc. by writing to 115 Park St., S.E., Vienna, Va. 22180, or by calling the company at (703) 281-1135.

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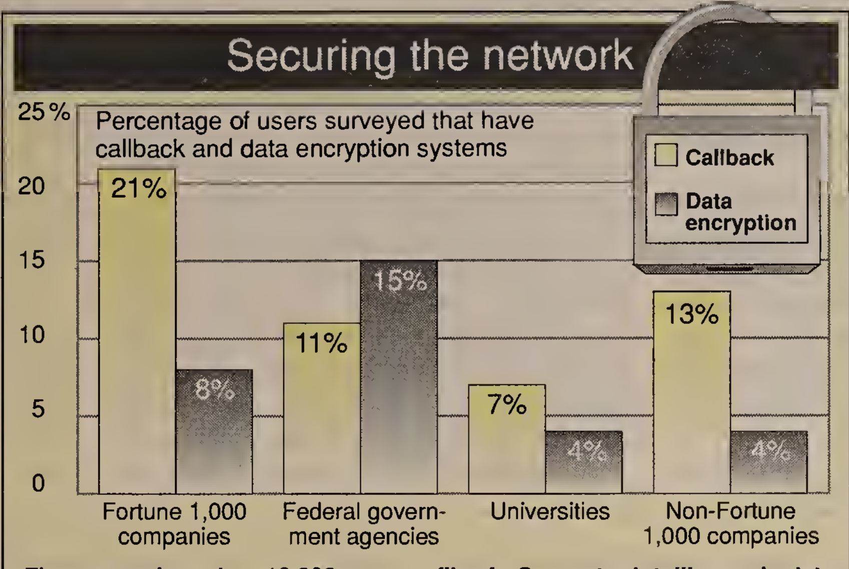

Figures are based on 18,000 user profiles in Computer Intelligence's data base. Callback security systems intercept an incoming data call, request a password and then call the user back at a predetermined number.

GRAPHIC BY SUSAN J. CHAMPENEY SOURCE: COMPUTER INTELLIGENCE, LA JOLLA, CALIF.

New multiprotocol PAD has frame relay interface

Reduces protocol overhead, speeds response.

By Jim Brown
Senior Editor

TUSTIN, Calif. — Sync Research, Inc. recently announced a multiprotocol packet assembler/disassembler with a frame relay interface that makes it possible to consolidate different types of traffic over high-speed wide-area network links.

The company's Network Access Controller/Frame Relay (NAC/FR) will enable customers to link terminals to remote hosts over private or public networks that support the evolving frame relay standard. The product complements Sync Research's existing NACs, which link terminals to remote hosts over X.25 or Systems Network Architecture nets.

Because it drastically reduces the protocol processing overhead inherent in both X.25 and SNA, the data-link layer protocol defined in the frame relay specification shortens the time it takes packets to flow through network switches to a remote site.

This is accomplished by eliminating the need for each intermediate switch in the network to check each packet for errors. Instead, only the sending and receiving switches check for errors.

Like the company's earlier products, the NAC/FR can replace low-end X.25 switches and IBM front-end processors used as remote concentrators.

The product has a chassis with five slots supporting interface boards, each having four RS-232 ports or a single V.35 port. The RS-232 boards can support locally attached terminals at up to 19.2K bit/sec or a 19.2K bit/sec WAN link, while the V.35 board provides a 64K bit/sec WAN link.

The device supports IBM's Synchronous Data Link Control, Binary Synchronous Communications and 2780/3780 remote job entry protocols, as well as Unisys Corp.'s Universal Terminal System protocol and asynchronous protocols.

The NAC/FR polls local terminals, off-loading this chore from the host and isolating the frame relay network from polling signals. The software then wraps incoming terminal traffic into frame relay packets, which are shipped in one or multiple 64K bit/sec links to a T-1 multiplexer or carrier service that is based on frame relay technology. At the host end, another NAC/FR unwraps incoming frame relay packets and routes the terminal traffic to the target host.

Introduction of the product brings to the forefront another application for frame relay technology, which has been touted so far as an advanced method for interconnecting remote local-area networks at high speeds.

The NAC/FR also backs up the opinion of many analysts who believe frame relay will replace X.25 even though it was conceived as an Integrated Services Digital Network standard.

The NAC/FR is scheduled to ship by year end at a price between $6,000 and $15,000. ☑

> The NAC/FR backs up the opinion of analysts who believe frame relay will replace X.25.

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IBM unveils bevy of VTAM enhancements

Latest version improves net availability, makes it easier to reconfigure mainframe peripherals.

By Paul Desmond
Senior Editor

POUGHKEEPSIE, N.Y. — Included in IBM's recent announcement of the Enterprise System/9000 family of mainframes were VTAM enhancements that improve network availability and make network changes easier and less disruptive.

ACF/VTAM Version 3 Release 4 for MVS/ESA, VM/ESA and VM/SP provides a dynamic network access feature that gives PU 2.1 devices — such as an Application System/400 minicomputer or Personal System/2 — access to VTAM via multiple data paths without preconfigurement, a capability that enhances both availability and throughput.

The new VTAM release also allows MVS users to add, move or remove channel-attached devices without taking the mainframe down and to preserve session data during a subsystem failure to speed system recovery.

Analyst reaction to the enhancements was mixed. Some said the enhancements were minor and overdue, while others said they offer a glimpse of changes to come as IBM attempts to move SNA away from a hierarchical to a more peer-oriented structure.

An example of the latter is the new dynamic network access feature for PU 2.1 nodes, a feature that has two key parts, according to Gary Burnette, an IBM VTAM designer.

The first part gives Type 2.1 logical units, such as LU 6.2-based applications, access to a host without requiring that they be defined to VTAM or the Network Control Program running in

(continued on page 16)

OSI demo at INTEROP 90 will feature 20 vendors

By Jim Brown
Senior Editor

SAN JOSE, Calif. — More than 20 vendors are scheduled to demonstrate interoperability between Open Systems Interconnection products at the INTEROP 90 Conference and Exhibition here next month.

The conference's OSI Showcase will be used to demonstrate interoperability between applications in different booths and the use of X.25 links to access applications on remote processors.

To support the OSI Showcase and other demonstrations at the conference, show sponsor Interop, Inc. is building a network consisting of Ethernet and token-ring nets connected via routers and a backbone Fiber Distributed Data Interface network.

Some vendors will also have X.25 links to an on-site Timeplex, Inc. X.25 switch, providing access to AT&T's Accunet Packet Service X.25 network.

The primary applications vendors will be demonstrating include File Transfer, Access and Management (FTAM) and X.400 electronic mail. Some vendors will attempt to demonstrate OSI's Virtual Terminal Protocol and early implementations of an X.500 directory.

"This is not a showcase off in a corner in a special booth that has OSI products in isolation," said Chris Moore, cochairman of the OSI Showcase and a product marketing manager at Touch Communications, Inc. "It's an effort to coordinate how vendors using a wide variety of OSI products can communicate with each other."

All the vendors in the OSI Showcase participated in a dry run of the demonstration during a week-long shakedown at a Unisys Corp. facility here.

To support the test, vendors teamed to build two Ethernets linked via Proteon, Inc. and cisco Systems, Inc. routers running X.25 gateway software that provided a link to an on-site Timeplex X.25 packet switch. That switch routed traffic via AT&T's Accunet Packet Service to vendor sites in Australia and Scotland.

"All of us shared a sense that we were building a corporate enterprise network in a week," said Denise O'Connor, a program marketing manager at Unisys and a representative to the INTEROP committee.

During the dry run, each vendor proved one of its OSI software packages could interoperate with the same software from at least five vendors. ☑

IBM unveils bevy of VTAM enhancements

continued from page 15

the front-end processor, Burnette said. Previously, every logical unit had to be predefined, but now VTAM can pick up the definition data for Type 2.1 logical units automatically when the logical unit begins a session, making it easier for those devices to access the network.

The second part of the feature gives LU 2.1s access to the network over multiple paths simultaneously. Previously, each logical unit was associated with a certain physical unit and all data going to or from a logical unit went through its associated data path.

The new feature also lets one data path back up another in case of failure. That can be used, for example, to let two VTAMs establish a Type 2.1 link to back up a channel-to-channel connection. Or, the two data paths can be used simultaneously to increase throughput.

Another advantage is Type 2.1 nodes such as the AS/400 can have one leased-line connection into an SNA host and one dial backup connection.

David Passmore, a partner with Ernst & Young's Network Strategies, Inc., a consultancy in Fairfax, Va., was largely unimpressed by the new dynamic access feature because it applied only to PU 2.1 devices, whereas the majority of SNA equipment is based on 3270 sessions, which are supported by PU 2s.

Passmore said the feature will take on added significance when IBM adds PU Type 2.1 support to their 3174 cluster controllers, a feature that was noticeably absent among the 140-plus products recently announced here.

But Frank Dzubeck, president of Communications Network Architects, Inc., a consulting firm in Washington, D.C., said the dynamic access feature is part of an evolutionary change that is moving SNA to a more peer-to-peer type of architecture.

"You can start to see the evolutionary changes that are taking SNA from a fixed hierarchical structure into something that's a combination of [hierarchical and peer-to-peer]," Dzubeck said. "VTAM is the base for SNA. When you make VTAM changes, that's the key to the kingdom."

Another new VTAM feature, applicable only to MVS/ESA SP Version 4 Release 2, takes advantage of IBM's new Enterprise Systems Connection Architecture (ESCON) 10M byte/sec fiber-optic mainframe channels.

Dynamic I/O

The new dynamic I/O feature allows MVS users to move, add or delete channel-attached front-end processors or cluster controllers while their mainframes are running, said Richard McGuinness, an IBM VTAM product planner.

With the existing bus/tag channel technology, users have to take down their mainframes when making changes to channel-attached equipment due to the risk of electrical currents from the channel cables disrupting data processing, McGuinness said.

That is not a concern with the new ESCON architecture since the channels use fiber-optic technology.

The feature adds a menu-driven application to MVS that requests from the MVS console operator all the data required to configure the new or moved controller. That application then sends a message to VTAM that triggers another application to dynamically make the definition change as soon as the change takes place, McGuinness said.

> "VTAM is the base for SNA. When you make VTAM changes, that's the key to the kingdom," Dzubeck said.
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Another new VTAM enhancement for MVS lets VTAM preserve session information for all types of logical units in the event of a subsystem outage, McGuinness added. Today a subsystem outage requires the recovery of the subsystem first, then the individual recovery of all the sessions supported by that particular subsystem.

The new capability "makes the total recovery much quicker because you don't have to go through the network traffic of starting all your sessions all over again," McGuinness said. While the subsystem is out, incoming data is stored until the subsystem is restored, preserving user data.

The new release of VTAM will be available in August of 1991 for MVS/ESA and in December of that year for VM/ESA and VM/SP. Pricing varies depending on configuration. ◪

Data Packets

continued from page 15

Codex Corp. last week said it would guarantee its 3600 Communications Platform will support 19.2K bit/sec transmissions over analog lines with D1 conditioning for at least 98% of the time during a 24-hour period or Codex will give the customer the unit free. Announced in May, the Codex 3600 can be configured to support analog or digital lines and works at speeds up to 24K bit/sec when configured as a modem ("Codex wares aimed at digital net needs," *NW*, May 21). The guarantee applies to new purchases in the U.S. for a limited time and is good until one year from the date of purchase. ◪

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PC AND TERMINAL-TO-HOST LANS, GATEWAYS AND MICRO COMMUNICATIONS PRODUCTS

Worth Noting

During the next four years, the size of the average local-area network will increase from nine to 16 nodes. And the hardware and software costs associated with connecting a single workstation to the LAN will decline 51%, from $766 in 1989 to $376 by 1994, according to a report by Frost & Sullivan, Inc. in New York.

Netnotes

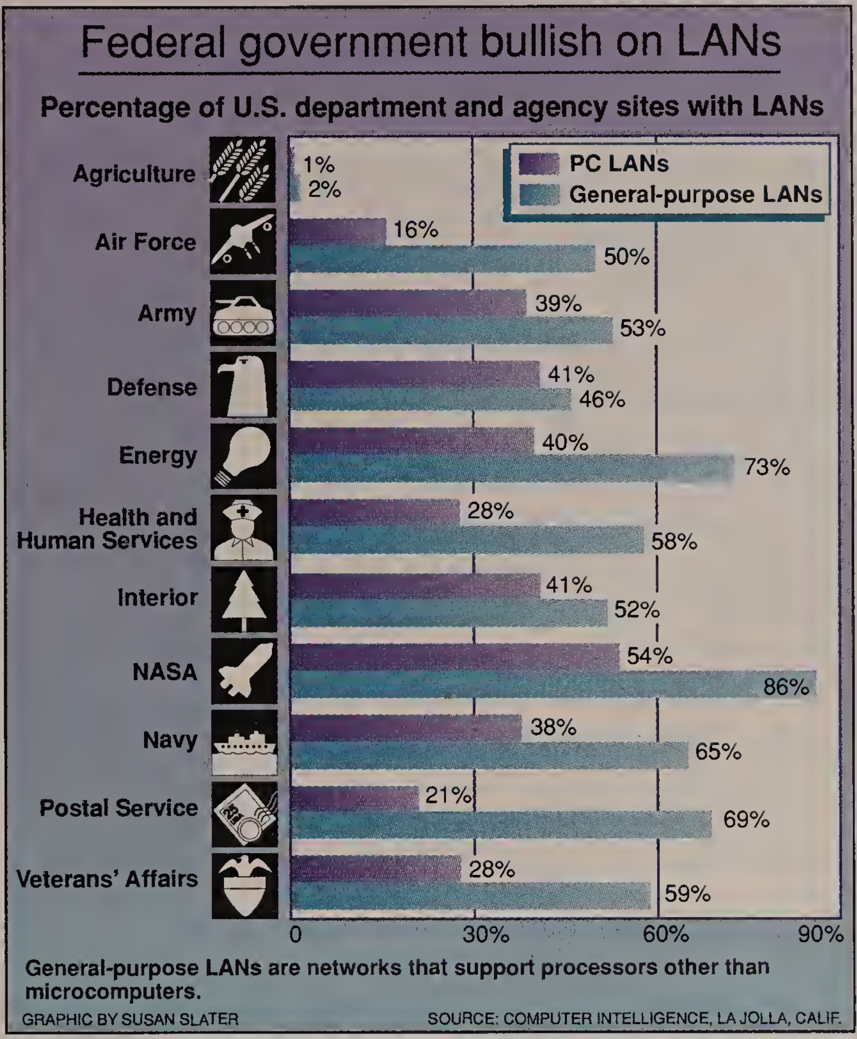
Farallon Computing, Inc. is entering the Ethernet adapter market with the release of 10BaseT Ethernet boards for Apple Computer, Inc.'s Macintosh II and Macintosh SE/30 computers.

The interfaces, part of Farallon's PhoneNet product line, have both RJ-45 and attachment unit interface (AUI) connectors and include drivers for Novell, Inc.'s NetWare. They are also bundled with Farallon's Timbuktu 3.1 communications software, which enables one user to control another's Macintosh across an AppleTalk network and to exchange files without the help of a server.

Another feature is support of Farallon's Liaison routing software, which can be used to route data across AppleTalk internetworks that include any mixture of LocalTalk, Ethernet, token-ring, Arcnet and broadband segments, as well as dial-up and Integrated Services Digital Network links.

The adapters cost $595 each, and the Macintosh II version is available in a package of 10 at a price of $4,995. The Liaison 3.0 software, which runs on a dedicated Macintosh, costs $395 and should be available this month.

Farallon Computing can be reached by writing to 2000 Powell St., Suite 600, Emeryville, Calif. 94608, or by calling (415) 596-9100.



Federal government bullish on LANs

Percentage of U.S. department and agency sites with LANs

General-purpose LANs are networks that support processors other than microcomputers.

GRAPHIC BY SUSAN SLATER

SOURCE: COMPUTER INTELLIGENCE, LA JOLLA, CALIF.

Federal gov't agencies meet diverse needs with LANs

Study finds LAN use runs high in gov't agencies.

By Laura DiDio
Senior Editor

LA JOLLA, Calif. — The federal government is one of the leading users of local-area networks, with LANs installed at more than 50% of all government agencies, according to a recent survey by Computer Intelligence (CI), a consultancy based here.

The report, "LAN Use at Federal Government and Fortune 1,000 Sites," based on a survey of more than 2,000 users in federal government, Fortune 1,000 and other sites, showed that only 34% of nongovernment users have installed LANs.

The major factor fueling federal government and Fortune 1,000 use of LANs is that their sites tend to be large and have many work groups, an ideal environment for LANs, according to David Eulitt, the CI analyst who compiled the report.

As part of the study, CI distinguished between two types of LANs: personal computer LANs, which connect only microcomputers, and general-purpose LANs, which CI defines as any network that includes at least one system larger than a PC, such as a high-performance workstation, mid-range system or mainframe.

The survey revealed that the type of LAN employed within government sites varies greatly according to the agency.

For example, 86% of the National Aeronautics and Space Administration sites surveyed by CI have general-purpose LANs. This is because NASA networks tend to run leading-edge, memory- and compute-intensive applications. However, the study also showed that 54% of the NASA sites also have personal computer LANs.

Other federal government agencies with a high complement of LANs include the Department of Energy, the U.S. Postal Service, the U.S. Navy, The Department of Veterans' Affairs and the Department of Health and Human Services. All of those agencies indicated that their usage of general-purpose LANs outpaced that of microcomputer LANs.

DEC vs. IBM

CI also tracked whether federal agencies have installed Digital Equipment Corp. VAXes or IBM mainframes in order to determine how the type of minicomputer or mainframe affects the type of LAN used.

The survey indicated that VAX users are more likely to have interconnected LANs than IBM mainframe users are. More than 60% of the federal government agencies with VAXes said they linked their LANs via bridges and gateways, while 56% of the users with IBM mainframes said they had interconnected their LANs. The study showed Ethernet usage at government agencies and Fortune 1,000 firms continues to outpace token-ring usage.

AT&T links Macs to Unix-based servers

Software lets AT&T's LAN Manager/Unix server provide file and print services to Macintosh micros.

By Laura DiDio
Senior Editor

MORRISTOWN, N.J. — AT&T's Computer Systems group last week announced the StarGroup Server for Macintosh, software that lets AT&T's LAN Manager/Unix servers support Apple Computer, Inc. Macintoshes.

StarGroup Server for Macintosh software enables Macintosh local-area network users to exchange file and print services with MS-DOS, OS/2 and Unix workstation users attached to the same LAN Manager/Unix server, according to Phil Galli, AT&T's LAN and host connectivity marketing manager.

The software runs as an application on any Intel Corp. 80386- or 80486-based StarGroup LAN Manager/Unix server running AT&T's Unix System V. The StarGroup LAN Manager/Unix server supports a maximum of 255 users on a single server.

According to Galli, AT&T has implemented the full native AppleTalk protocol stack in the StarGroup Macintosh software, which means users don't have to install more hardware or software on Macintosh workstations to share file and print services. Macintosh users can access the server by selecting an icon on the Macintosh screen, he said.

Galli said the printing function of the software will enable users to access print services on the StarGroup LAN Manager/Unix network or the local AppleTalk net. "This is an advantage for all users on the network because it means that the DOS, OS/2, Unix and Macintosh users can share the same Postscript printers," Galli said.

Because the StarGroup Macintosh software runs as an application on the server, Unix security — which lets net administrators add or delete user access to particular file servers or network resources — is extended to the Macintosh environment, he said.

"With the Unix security, the network administrator can limit file and program access according to a particular user or work group. By contrast, the Macintosh environment is wide open," Galli explained.

However, the StarGroup Macintosh software, he said, does not include electronic mail messaging capabilities. AT&T will incorporate E-mail services that support Macintosh users into the next release of its StarMail, due out in the first quarter of 1991.

In the interim, Macintosh users can share E-mail with other DOS, OS/2 and Unix users via AT&T PMX Mail, the company's corporatewide messaging service that offers connectivity between StarGroup, LAN Manager/Unix, Novell, Inc. NetWare and IBM PC LAN Server nets, Galli said.

Early feedback

One alpha- and beta-test user of the forthcoming AT&T StarGroup Server for Macintosh is Trinity College, a liberal arts college in Hartford, Conn., with approximately 1,900 students.

Trinity standardized a year ago on AT&T StarGroup LAN Manager/Unix server software. The college is currently testing the alpha-test version of StarGroup Macintosh software on its computer center LAN. When testing is complete, the software will be used by students for file and print sharing, according to Bernard Hecker, assistant director of computing at Trinity College.

"We like it because it gives us scalability and flexibility in the way we manage our LANs," Hecker said. "Our current crop of stand-alone AppleTalk servers aren't scalable. We can't go from 10 to 100 users attached to a single AppleTalk server."

Hecker said Trinity, which has a small technical staff and a limited budget, also found the StarGroup Server for Macintosh software economical and efficient in terms of net management.

"We don't have to spend time and money installing any new hardware to make the software work, and it doesn't require any additional training for the Macintosh users," Hecker said.

"It also makes network management much simpler and less time-consuming because I can manage all of the resources and networks from a central site. I can allocate disk space on the server to any one or multiple LANs simultaneously and just do one set of tape backups," he said.

StarGroup Server for Macintosh is expected to ship in December. An eight-user license costs $795, and an unlimited user license lists for $1,295. Galli said DOS and OS/2 client workstations attached to PC LAN and PC LAN Server nets will be able to access AT&T StarGroup LAN Manager/Unix servers by year end.

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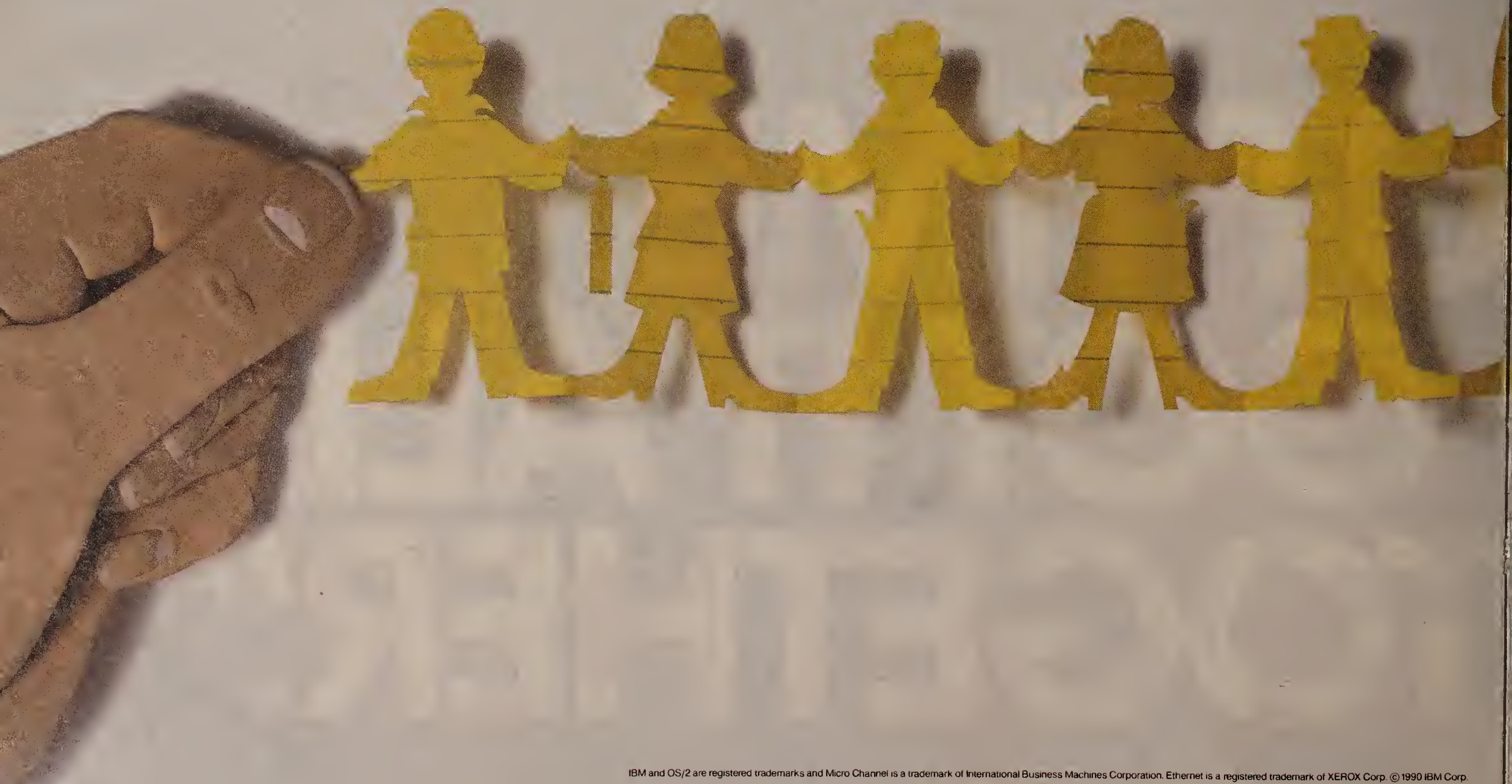

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MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USERS GROUPS AND ASSOCIATIONS

Worth Noting

"I decide which conferences to attend by asking vendors which shows generate the most sales leads for them. [Communication Network '90] is No. 1 and [the Tele-Communications Association, Inc. show] is No. 2. That's where I can get the most business done."

Bernie Schneider
Former telecommunications director
United Stationers, Inc.
Des Plaines, Ill.

Association Watch

John Young, president and chief executive officer of Hewlett-Packard Co., will be the keynote speaker at the **Electronic Mail Association's (EMA)** annual conference to be held from Oct. 22 to 24 at the Fairmont Hotel in San Francisco.

The conference, titled "Electronic Messaging '90: Beyond Interpersonal Correspondence," will focus on messaging integration. The presentation will include such topics as messaging strategies, end-user training, messaging integration with electronic data interchange and facsimile, X.500 directories, local-area network user issues, gateways and connectivity, portable messaging and global trends.

The conference fee is $495 for employees of EMA member organizations and $695 for nonmembers. An early registration discount is also available.

The EMA is a nonprofit trade association representing companies involved in the electronic messaging industry, including major vendors and users.

For more information, contact the EMA at (703) 522-7111.

IS execs need to actively shape corporate strategy

Report details five ways network managers can play a part in the success of their business unit.

By Maureen Molloy
Staff Writer

As computers become more critical to the success of companies, the role of the information systems (IS) executive has broadened from a position that supports corporate strategy to one that helps shape it.

IS executives need to be involved in creating a vision for the organization's future.

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According to a report issued by the United Communications Group in Bethesda, Md., this increase in corporate visibility requires IS executives to:

- **Learn about the business.** IS executives must not only familiarize themselves with the organization's internal operations, but also with its products and services, as well as the marketplace in general.
- **Establish systems department credibility with executive management.** Some of the best ways to achieve this is by improving service levels, running efficient data centers, knowing what is important to end users and measuring the IS department's own performance.
- **Help others become comfortable with technology.** By changing management's perception of computers and helping them adjust to the technology, the company is more apt to realize the true strategic uses of information systems.
- **Create a goal for the use of information technology in the company and sell that vision to others.** Since information technology is important to the success of many firms, IS executives need to be involved in

(continued on page 24)

BOOK REVIEW

BY ERIC SCHMALL

Datacom guide improves with new edition

Telecommunications and the Computer, Third Edition, James Martin (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1990), $50.

Fourteen years have elapsed since Martin published his last edition of this comprehensive survey of data communications technology.

Looking through that 1976 text is almost like reading a medieval manuscript. Pictures of 1,200-baud modems roughly the size of Buicks, art deco-shaped Teletype machines and antique satellites jostle the reader into realizing how far we've come in the intervening years.

The latest edition of the book reflects the revolutionary changes that have marked the past decade and a half. Although the new edition only has 50 more pages than the 1976 version, the qualitative changes account for the real value of this work.

Martin has kept the fundamental structure of the earlier edition intact, dividing his book into major components that address telecommunications principles, transmission techniques, switching concepts and imperfections that can corrupt information flow.

In this update, he makes a major change by considering analog and digital transmission methodologies. He also adds a well-developed section dealing with office communications in which he delves into local-area networks, electronic mail, document transmission and enhanced voice/video services — for example, cellular service and electronic compound documents. The section on private branch exchange switching has been completely overhauled as well.

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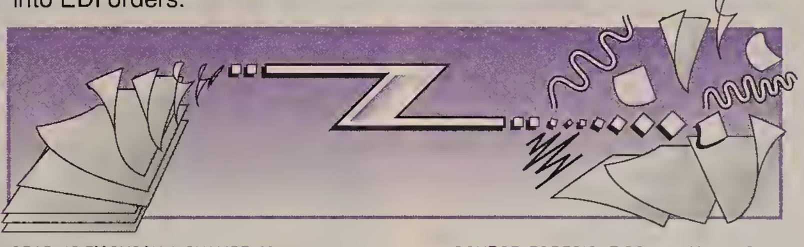
EDI snafus

Problems that can occur with EDI systems

1. **EDI system failure.** EDI systems that have insufficient disk space, application bugs or undersized buffers can crash unexpectedly.
2. **Syntactical errors.** Software bugs or improper data may create syntactical errors in the EDI transmission, resulting in lost or incorrect orders.
3. **Performance degradation.** EDI processing may slow significantly as companies increase transaction volumes and add trading partners.
4. **Deviation from standards.** EDI trading partners transmitting data that deviates slightly from published EDI standards can insert errors into EDI orders.



GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: FORESIGHT CORP., DUBLIN, OHIO

EDI susceptible to costly order errors

Testing procedures, quality control guidelines are becoming essential as technology gains ground.

By Wayne Eckerson
Senior Writer

While the acceptance of electronic data interchange promises users many benefits, it also increases the risks that errors generated by EDI systems could result in losses caused by misplaced or inaccurate orders.

As a result, many large EDI users are seeking to improve the reliability of intercompany electronic transmissions by implementing quality assurance tests and procedures.

"The way most companies implement EDI has been sloppy," said Joe Phelan, manager of corporate EDI programs at Ford Motor Co. in Dearborn, Mich. "The whole process needs to be overhauled and strengthened with quality control measures."

According to Robert Fisher, president of the Foresight Corp., an EDI development firm specializing in quality assurance in Dublin, Ohio, 80% of EDI users — about 8,000 firms — are experiencing EDI growing pains that undermine the reliability and accuracy of their EDI systems.

As companies add new trading partners and increase EDI transaction volumes, many will overload the capacity of their EDI systems, slowing response times or leading to outright system failure, Fisher said.

In addition, many EDI users are being forced to continually update their systems to accommodate new versions of EDI standards, unique trading partner requirements and data from new corporate applications, Fisher said. These changes can often introduce errors in EDI transmissions that can result in lost or inaccurate orders and strain trading partner relations.

For companies that rely on EDI to support just-in-time delivery of parts or goods — mainly manufacturers and retailers — EDI errors can be costly.

Fisher said EDI staffs at most companies spend 75% of their time fighting fires — catching and correcting system errors before irrevocable damage is done to the company's bottom line or reputation.

For companies that rely on EDI to support just-in-time delivery, EDI errors can be costly.

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"Many EDI users take great pride in their ability to catch EDI errors before they cause major problems, but most don't realize that they can eliminate 99% of the errors from occurring by implementing EDI testing procedures and quality control guidelines," Fisher said.

Phelan said Ford is planning to implement quality control guidelines for EDI in the near future. While he wasn't sure exactly what form the EDI guidelines would take, he said they would probably be similar to the company's quali-

(continued on page 24)

On-line recruiting service gives users low-cost option

By Maureen Molloy
Staff Writer

Companies looking to hire computer and communications networking professionals now have a less expensive, more efficent way to hook up with qualified job candidates, thanks to a new high-technology recruitment service launched last Friday by *Network World* and Help Wanted On-Line, Inc.

Networking Employment Solutions (NES) "is cutting-edge recruitment," said William Reinstein, president of Help Wanted On-Line, a company that specializes in on-line recruitment data base publishing.

"We're making networking professionals aware of opportunities to advance their careers by combining two companies' strengths — *Network World's* credibility and reach in the market, as well as Help Wanted On-Line's experience in the design and management of on-line recruitment data bases."

To use NES to reach potential job candidates, customers will have to complete an NES Search Request Form, selecting criteria on which to screen candidates. Screening can be general or highly specific and based on job function, primary responsibility, industry classification, geographic location of candidates and other technical criteria.

After NES receives the form, it will conduct a search of *Network World's* subscriber data base containing the names of more than 100,000 network professionals. An additional 50,000 will be added to the data base when *Network World* expands its subscription base in January.

> "We're making networking professionals aware of opportunities to advance their careers by combining two companies' strengths — *Network World's* credibility and reach in the market, and Help Wanted On-Line's experience in the design and management of on-line recruitment data bases."

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Within 24 hours, NES will provide a list of names of the people whose criteria match those specified by the hiring company. The job candidates are then sent a Candidate Contact Letter that lists the job title and description, the company's name and an NES toll-free number to call if they're interested in the position.

During the phone call, each candidate will be asked a series of prescreening questions supplied by the recruiting company. Within eight days after the contact letters are sent, NES will forward the responses and a skills profile of the candidates to the client.

Reinstein said NES job candidates' identities will be strictly confidential until they approve the release of their name to the hiring firm.

He said NES can be viewed as an inexpensive recruitment alternative because professionals can be located to fill job vacancies at a significantly lower cost than if a company employed a traditional recruitment firm.

"If a candidate is making $60,000, the recruiting firm typically gets 25% of that salary, or a $15,000 placement fee," Reinstein said. "By using NES, a company could pay as little as $1,000 to find a suitable candidate."

The entire NES process costs a base price of $1,000 per search to contact as many as 100 prospective candidates. There is a $150 charge for each additional 50 contacts, though multiple search and frequency discounts are also available.

"NES gives companies a new way to get their job opportunities in front of the professionals they need to reach," said *Network World* publisher Gary Beach. "The networking industry is exploding and has a critical need for very qualified networking professionals. NES will help companies find the type of people they're looking for."

IS execs must shape strategy

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creating a vision for the organization's future by including uses of these technologies.

- **Implement a new system architecture.** Once IS executives achieve operational credibility with top management, they can shift their attention to the future and address how information technology can allow the company to operate better, faster and less expensively.

Harvey Shrednick, vice-president of Information Services at Corning, Inc. in New York, agreed that IS executives must take on greater responsibilities as the success of their departments increasingly affects the company's bottom line. One of the best ways IS executives can enhance their leadership role, he said, is by running their departments like a business.

"We need to be perceived as businesspeople, not IS people, if we want to keep our credibility intact with other executives," said Shrednick, who noted that different objectives left IS executives poorly matched with other corporate officers in the past.

"The IS person would be enamored with the technology and wouldn't think about how it related to the company's needs, and executives would tune out whenever the IS person started talking technical," Shrednick said.

"What's happening now is that IS departments are becoming more business-oriented while the business executive is becoming better educated on how the computer can help the company," he said.

The report stated that although most IS executives won't need to start from scratch in all five areas, many will find they need to improve significantly in several of them. Lists of top IS manager concerns have traditionally focused on internal department issues, often revolving around specific new information technologies. These lists have also implied that the IS executive is a follower who carries out the strategies of top management.

However, the ever-increasing ability of information technology to make significant competitive contributions to businesses — by forcing change as well as allowing companies to respond to change — calls for IS executives to take on a greater leadership role to better assist their firms, according to the report.

The report was based on the findings of Barbara McNurling, who conducted research and in-depth interviews with CEOs, IS executives and consultants of major U.S. companies.

EDI susceptible to costly errors

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ty specifications for materials management processes.

According to Fisher, EDI quality assurance testing falls into five general categories.

- **Trading partner tests,** which are preproduction tests with trading partners to ensure EDI transmission works as agreed.
- **Functional testing,** which determines whether EDI transactions conform to specified EDI standards or versions.
- **Error testing,** which forces errors through the EDI system to see how it interprets them.
- **Volume or performance testing,** which determines the degradation in system response time as transaction volumes increase. These tests can help companies estimate future hardware requirements.
- **Regression testing,** which ensures that changes made to one part of the system don't adversely affect other areas.

Unfortunately, there are few commercial products that perform one or all of these tests, forcing companies like Ford to develop their own test programs, Fisher said. He added that Foresight expects to announce a quality assurance test package later this year, although he declined to provide details.

Many EDI users and consultants say EDI testing is especially needed with trading partners that have developed their own EDI translation software instead of buying a commercial package.

These homegrown systems often use syntax or naming conventions that do not conform to EDI standards. This can create large problems if the discrepancies are not corrected, said John Pendrak, project manager of order management systems and EDI at Asea Brown Boveri, a maker of electrical transformers and power tools in Atlanta.

Pendrak said one trading partner of a company he used to work for would indicate that prices listed on a shipping notice were estimated (as opposed to actual prices) by placing '$.10' in the appropriate price column. While this convention worked well in a paper-based system, it created enormous difficulties when the companies switched to EDI.

Using a homegrown EDI system, the trading partner continued to indicate estimated prices by inserting 10 cents into the price column instead of using the naming convention specified in the ANSI X12 standard. This created a billing discrepancy that took some time to resolve, Pendrak said.

Other users, however, say EDI systems are relatively fail-safe: Once they are debugged, there is little that can go wrong.

An EDI manager at a consumer products company that has 416 trading partners said most commercially available translation software is able to identify when an incoming or outgoing EDI transaction doesn't conform to standard syntax and can't be interpreted.

"If there is a problem with a transaction, the software notifies us and we can usually fix it in a flash before the trading partner ever knows there's a problem," said the manager, who requested anonymity.

In addition, software that runs the firm's purchasing system defines parameters for certain fields on purchase orders and invoices, such as price and quantity. If these parameters are exceeded in an incoming or outgoing EDI transaction, the software notifies the purchasing manager who investigates the situation. This safeguard catches errors that might be syntactically correct but numerically wrong, the manager said.

"We have sent purchase orders for four million units that should have been 400,000 units, but the [purchasing software usually caught those] problems," the manager said. "In any case, our suppliers are legally bound to call us when they receive an order that doesn't conform to our normal volume of business."

Guide improves with new edition

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Other significant additions in the expanded section on digital transmission concern Integrated Services Digital Network technology and fiber optics as well as broadband networks. Tariffs, standards and protocols are also covered.

As in his earlier books, Martin shows a knack in this edition for explaining complex ideas in simple language. His drawings and illustrations are understandable, clear and concise.

Despite all of the revolutionary changes in the industry, some items have endured. Martin has judiciously retained — and made little if any change to — traditional topics such as analog modulation/demodulation, line characteristics — such as noise and attenuation — as well as delays and blocking.

Some items have been justifiably pushed into the background. Subjects such as Telex and Teletype can still be found, but their former prominence has waned in the shadow of newer more relevent technologies.

This edition, though vastly improved, comes up short in some areas when compared to its 1976 predecessor.

The comprehensive glossary found in the earlier edition has been deleted, and many of the newer sections lack the references that characterized the sections in the earlier work. In one peculiar instance, the author cites a 1991 book as his source.

All in all, though, Martin has produced a highly readable and freshly updated textbook on a number of key areas involving data communications.

This edition has value regardless of whether the reader has had the opportunity to become familiar with the 1976 version. The new sections of the 1990 edition provide effective explanations of recent technological developments, while the older sections provide a helpful refresher on the abiding subjects found in this discipline.

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C. Please Answer ALL Questions, Sign & Date the Form.

1 Industry: (check one only)

01. ☐ Manufacturers (other than computer/communications)
02. ☐ Finance/Banking
03. ☐ Insurance
04. ☐ Real Estate
05. ☐ Healthcare Services
06. ☐ Legal
07. ☐ Hospitality
08. ☐ Retail/Wholesale Trade
09. ☐ Transportation
10. ☐ Utilities
11. ☐ Education
12. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
13. ☐ Government State/Local
14. ☐ Government Federal
15. ☐ Military
16. ☐ Aerospace
17. ☐ Consultants (independent)
18. ☐ Carriers
19. ☐ Interconnects
20. ☐ Manufacturers (Computer/Communications)
21. ☐ VAR/VAD/Systems House
22. ☐ Distributor, Computer Related
23. ☐ Distributor, Communications Related
24. ☐ Other ______________

2 Job function: (check one only)

1. ☐ Networking Management (Responsible for both voice & data)
2. ☐ MIS Management (VP, Dir., Department Head)
3. ☐ Corporate Management (Chairman, President, Owner, General Manager, CEO, CIO, VP)
4. ☐ Data Communications Management (Responsible for data only)
5. ☐ Telecommunications Management (Responsible for voice only)
6. ☐ Financial Management
7. ☐ Engineering Management
8. ☐ Consultant (Independent)
9. ☐ Other ______________

3 What is the scope of your involvement in purchase decisions for Network/Communications products + services? (check one only)

1. ☐ Enterprise Wide (Organization/Subsidiary/Division)
2. ☐ Multi Enterprise (Consultants)
3. ☐ Department Wide

4 What is the total number of sites for which you have purchase influence?

1. ☐ 100+
2. ☐ 50 - 99
3. ☐ 20 - 49
4. ☐ 10 - 19
5. ☐ 2 - 9
6. ☐ 1

5 Your primary responsibility: (check one only)

1. ☐ Both Data + Voice
2. ☐ Data Networking Only
3. ☐ Voice Networking Only
4. ☐ None

6 Which transmission media do you use in your network: (check all that apply)

Public:
01. ☐ Switched-Based (DDD, Wats, Megacom, etc.)
02. ☐ Leased Line (not including T-1)
03. ☐ T-1
04. ☐ Fractional T-1
05. ☐ T-3/SONET
06. ☐ Broadband
07. ☐ ISDN

Private:
08. ☐ Satellite
09. ☐ Microwave
10. ☐ Fiber Optic

7 Is your network: (check all that apply)

LOCAL AREA NETWORK
1. ☐ Local (within building)
2. ☐ Local (in a campus environment)

WIDE AREA NETWORKS
3. ☐ International
4. ☐ National
5. ☐ Regional (several states)
6. ☐ Metropolitan

8 What is your network architecture? (check all that apply)

1. ☐ SNA
2. ☐ DECNET
3. ☐ OSI
4. ☐ GOSIP
5. ☐ MAP/TOP
6. ☐ TCP/IP
7. ☐ DCA (UNISYS)
8. ☐ OTHER ______________

9 What is your LAN Operating System? (check all that apply)

01. ☐ 3COM (3+, 3+open)
02. ☐ LOCAL TALK (APPLETALK)
03. ☐ BANYAN (VINES)
04. ☐ DCA (IRMALAN)
05. ☐ IBM (LAN Server)
06. ☐ IBM (PC LAN PROGRAM)
07. ☐ MICROSOFT (LAN MANAGER)
08. ☐ UNGERMAN BASS (NET/1)
09. ☐ NOVELL (NETWARE)
10. ☐ TOPS
11. ☐ PROTEON (PRONET)
12. ☐ OTHER ______________

10 What is your LAN environment? (check all that apply)

1. ☐ 4M TOKEN RING
2. ☐ 16M TOKEN RING
3. ☐ ARCNET
4. ☐ ETHERNET
5. ☐ STARLAN
6. ☐ FDDI
7. ☐ LOCALTALK
8. ☐ OTHER ______

11 Which operating systems do you utilize? (check all that apply)

1. ☐ IBM DOS (VSE)
2. ☐ UNIX
3. ☐ OS/2
4. ☐ OS/2 Extended Edition
5. ☐ MVS
6. ☐ VM
7. ☐ VMS
8. ☐ XENIX
9. ☐ PICK
0. ☐ OTHER ______

12 Please indicate by vendor the number of mainframes/minicomputers installed in your network.

VENDOR	MAINFRAMES A	MINIS B
01. DEC		
02. IBM		
03. AMDAHL		
04. AT&T		
05. BULL HN IS		
06. NCR		
07. DATA GENERAL		
08. WANG		
09. HEWLETT PACKARD		
10. PRIME		
11. TANDEM		
12. UNISYS		
13. CONTROL DATA		
14. OTHER		

13 Please indicate by vendor the number of microcomputers/workstations:

A. Presently installed in your network.

B. The approximate quantity you plan to install in the next 12 months.

MICROCOMPUTER/ WORKSTATION/ VENDOR	PRESENTLY INSTALLED A	PLAN TO INSTALL NEXT 12 MONTHS B
01. PCs based on 80286 chip		
02. PCs based on 80386 chip		
03. PCs based on 80486 chip		
04. 8086/8088		
05. Macintosh		
06. RISC-based workstations		
07. UNIX-based workstations		

14 What is your planned PC standard? (check all that apply)

1. ☐ EISA
2. ☐ MCA
3. ☐ NUBUS (MACINTOSH)

15 For which areas outside of the U.S. do you have purchasing influence? (check all that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East

16 Check ALL that apply in columns A and B

A) I am presently involved in the purchase process for the following products/services:

B) I plan to purchase the following products/ services in the next 12 months:

Presently Involved	Plan to Purchase	
A	B	LOCAL AREA NETWORKS:
01. ☐	☐	Local Area Networks
02. ☐	☐	LAN Servers
03. ☐	☐	LAN Services
04. ☐	☐	Cables, Connectors, Baluns
05. ☐	☐	Bridges, Routers, Gateways
06. ☐	☐	UPS
07. ☐	☐	LAN Storage Devices
A	B	COMPUTERS/PERIPHERALS:
08. ☐	☐	Micros
09. ☐	☐	Minis
10. ☐	☐	Mainframes
11. ☐	☐	Front End Processors
12. ☐	☐	Terminals
13. ☐	☐	Laptops
14. ☐	☐	Printers
15. ☐	☐	Work Stations
16. ☐	☐	Cluster Controllers
A	B	SOFTWARE:
17. ☐	☐	Network Management
18. ☐	☐	Micro to Mainframe
19. ☐	☐	Network Security
20. ☐	☐	Call Accounting
21. ☐	☐	Distributed DBMS
22. ☐	☐	Communications Software
23. ☐	☐	Applications Software
24. ☐	☐	Network Operating Systems Software
25. ☐	☐	EDI Software
26. ☐	☐	E-Mail Software
A	B	DATA COMMUNICATIONS:
27. ☐	☐	Modems (over 9.6kbps)
28. ☐	☐	Modems (under 9.6kbps)
29. ☐	☐	T-1 Multiplexers
30. ☐	☐	T-3 Multiplexers
31. ☐	☐	Fractional T-1 Multiplexers
32. ☐	☐	Data Switches
33. ☐	☐	Matrix Switches
34. ☐	☐	Packet Switches
35. ☐	☐	Protocol Converters
36. ☐	☐	Network Management Systems
37. ☐	☐	Terminal Emulation Boards
38. ☐	☐	Facsimile Machines
39. ☐	☐	Diagnostic Test Equipment
40. ☐	☐	DSU/CSU
41. ☐	☐	Data Security
42. ☐	☐	Data Compression Equipment
43. ☐	☐	Network Adapter Boards
44. ☐	☐	Microwave
45. ☐	☐	Messaging Software
A	B	TELECOMMUNICATIONS:
46. ☐	☐	PBXs (over 1000 lines)
47. ☐	☐	PBXs (200 - 1000 lines)
48. ☐	☐	PBXs (under 200 lines)
49. ☐	☐	Key Systems
50. ☐	☐	Automatic Call Distributors
51. ☐	☐	Voice Messaging Systems
52. ☐	☐	Video Teleconferencing Systems
A	B	SERVICES:
53. ☐	☐	Switched Voice
54. ☐	☐	Dedicated Leased Line
55. ☐	☐	T-1
56. ☐	☐	T-3
57. ☐	☐	Digital Data
58. ☐	☐	Packet Switched
59. ☐	☐	Centrex
60. ☐	☐	Central Office Lan
61. ☐	☐	Satellite
62. ☐	☐	On-Line Information
63. ☐	☐	ISDN
64. ☐	☐	EMail
65. ☐	☐	VSAT

(continued on next column)

17 Estimated value of networking equipment and services:

A: Which you helped specify, recommend or approve in the last 12 months?

B: Which you plan to help specify, recommend or approve in the next 12 months?

A	B
1 ☐	☐ $100 million and over
2 ☐	☐ $50 - $99.9 mill
3 ☐	☐ $25 - $49.9 mill
4 ☐	☐ $20 - $24.9 mill.
5 ☐	☐ $10 - $19.9 mill.
6 ☐	☐ $5 - $9.9 mill.
7 ☐	☐ $1 - $4.9 mill.
8 ☐	☐ $500,000 - $999,999
9 ☐	☐ Under $500,000

18 Estimated gross annual revenue of your entire company/institution: (check one only)

1. ☐ over $10 billion
2. ☐ $1 to $9.9 bill.
3. ☐ $500 to $1 bill.
4. ☐ $100 to $499.9 mill.
5. ☐ $50 to $99.9 mill.
6. ☐ $10 to $49.9 mill.
7. ☐ $5 to 9.9 mill.
8. ☐ under $5 mill.

19 Estimated number of employees for your entire corporation:

1. ☐ over 10,000
2. ☐ 5,000 - 9,999
3. ☐ 2,500 - 4,999
4. ☐ 1,000 - 2,499
5. ☐ 500 - 999
6. ☐ under 500

20 Which of the following ISDN products do you plan to purchase in the next 12 months? (check all that apply)

1. ☐ Basic Rate Interface Terminal Adapters
2. ☐ Primary Rate Interface Equipment
3. ☐ Voice/Data terminals
4. ☐ Voice-only terminals
5. ☐ Data-only terminals

21 From which of the following vendors will you consider buying your PBX/Central Office Switch? (check all that apply)

A PBX	B COS	
A ☐	☐	AT&T
B ☐	☐	ALCATEL
C ☐	☐	ERICSSON
D ☐	☐	FUJITSU
E ☐		HARRIS
F ☐		HITACHI
G ☐		ROLM
H ☐		INTECOM
I ☐		MEMOREX TELEX
J ☐		MITEL
K ☐	☐	NEC
L ☐	☐	NORTHERN TELECOM
M ☐		SAMSUNG
N ☐	☐	SIEMENS
O ☐		STROMBERG-CARLSON
P ☐		TOSHIBA
Q ☐	☐	OTHER ______________

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Worth Noting

Ameritech and Bell Atlantic Corp., along with two New Zealand companies, last week officially concluded their acquisition of Telecom Corporation of New Zealand, Ltd. from the New Zealand government at a cost of about $2.4 billion. The regional Bell holding companies will reduce their 90% ownership stake to 49.9% during the next three years.

World News

The U.S. subsidiary of **Hyundai Corp.**, an industrial conglomerate in Seoul, South Korea, last week announced its plans to use AT&T's Software-Defined Network (SDN) service to provide switched network services to more than 120 locations across the U.S.

According to Howard Hwang, telecommunications manager with Hyundai Electronics America, the SDN will be interconnected with a massive private network that Hyundai is currently building to shuttle voice, data and video traffic between its corporate headquarters in South Korea and offices around the world.

Hughes Network Systems, Inc., a unit of Hughes Aircraft Co. in Germantown, Md., recently announced plans to build a very small aperture terminal network linking 30 remote silver and copper mines in Peru.

According to a company spokeswoman, the network will be the first VSAT net to use Alpha Lyracom Pan American Satellite transmission services. Until this contract, Pan American Satellite had only provided television, voice and data services to users with large satellite dishes, the spokeswoman said.

Eastern Europe to benefit from relaxed export rules

Region will be allowed to import high-tech gear.

By Barton Crockett
Senior Editor

Users planning to operate networks in Eastern Europe should find it easier to use their preferred computing and communications equipment thanks to more permissive export rules recently adopted by the Coordinating Committee for Multilateral Export Controls (COCOM).

At an international meeting in June, COCOM, a group of Western countries that regulates exports of technology products, adopted new rules that make it easier for users and vendors to import advanced computer and communications equipment into Eastern Bloc countries. These rules went into effect in July and are now being used by vendors and users throughout the world to bring more sophisticated information systems into Eastern Europe.

"Basically, there's been a major change of attitude in this whole area," said Cesare Rosati, technical adviser to the U.S. deputy secretary of state for international trade control. "Users should now be able to use just about any standard office [computing and network] equipment in Eastern Europe that is in use at home."

PS/2s now legal

On the computing side, Rosati said that previous COCOM rules prohibited users from carrying anything more powerful than IBM Personal Computer ATs and compatibles into the East Bloc without getting a special license. Now users can transport any computer into the region with the power equivalent to a 33-MHz Intel Corp. 80386-based IBM Personal System/2 Model 70 or 80.

Rosati said users will also be able to freely install older computers — such as early IBM 4300 series machines — that offer comparable performance to the high-end IBM PS/2s.

He added that in instances where users need to get special licenses, their requests will probably be approved as long as the applicant does not intend to use the equipment in blatant disregard of Western security, such as to design nuclear warheads. Rosati said this represents a marked

(continued on page 30)

AT&T, Canadian carrier resolve private-line issue

BASKING RIDGE, N.J. — AT&T recently agreed to let private-line users in Canada dump voice traffic onto the AT&T switched network in return for the right to do the same on the Canadian public network.

According to Charlie Meyers, AT&T's manager of international policy development and regulatory affairs, AT&T dropped its objection to the practice after the Canadian government on May 31 reversed its position regarding use of U.S. private lines to pour traffic into the Canadian net. Both stipulations limited users' ability to use private lines to replace international switched services.

AT&T was not willing to forgo international switched service revenues unless Canadian carriers did the same. "We didn't think it was a fair situation," Meyers said.

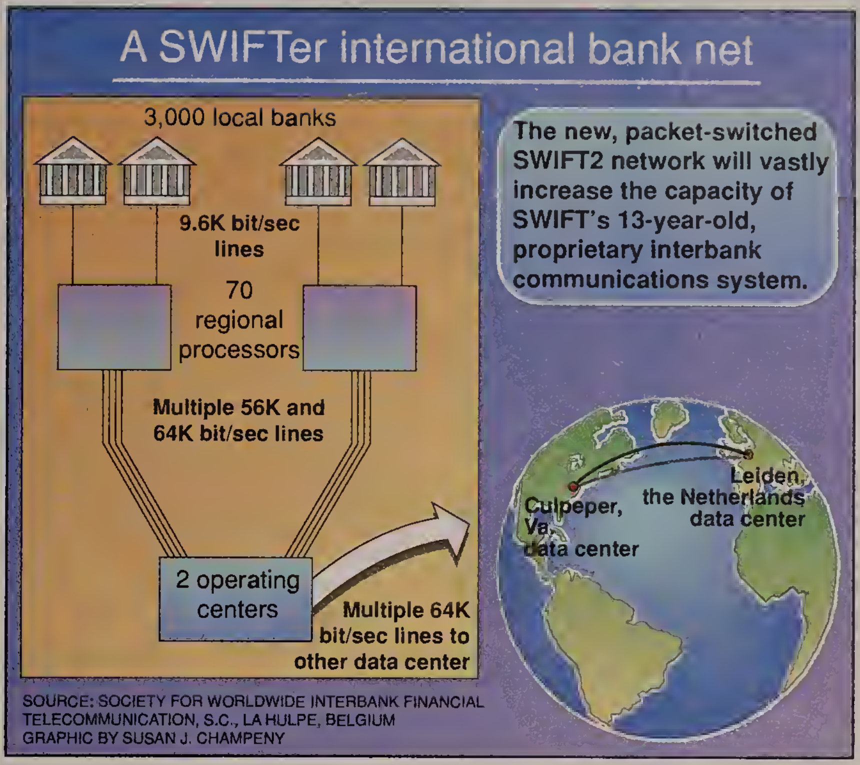
After the Canadian government reversed its decision and opted to allow traffic from international private lines to be routed into the Canadian public network, AT&T decided to back off its restriction. Meyers said AT&T killed the Canadian private limitation on Aug. 28, when a new tariff took effect.

US Sprint Communications Co. and MCI Communications Corp. have allowed traffic to flow over private lines from Canada into the U.S. public switched network since last year.

In related news, AT&T plans to increase from 57 to 167 the number of countries in which users can obtain discounts on international switched services.

In a filing that is scheduled to take effect on Oct. 15, AT&T said it will extend its Additional International Discounts to all 167 countries served by its standard International Long Distance Service.

Additional International Discounts awards users savings of 12% to 15% on international switched services when they subscribe to such domestic AT&T services as Software-Defined Network and AT&T Pro WATS. Currently, these discounts are only available for service to 57 countries.


A SWIFTer international bank net

3,000 local banks
9.6K bit/sec lines
70 regional processors
Multiple 56K and 64K bit/sec lines
2 operating centers
Multiple 64K bit/sec lines to other data center
Culpeper, Va. data center
Leiden, the Netherlands data center

The new, packet-switched SWIFT2 network will vastly increase the capacity of SWIFT's 13-year-old, proprietary interbank communications system.

SOURCE: SOCIETY FOR WORLDWIDE INTERBANK FINANCIAL TELECOMMUNICATION, S.C., LA HULPE, BELGIUM
GRAPHIC BY SUSAN J. CHAMPENY

SWIFT2 completion adds needed capacity

Three years late in coming, the funds transfer net is sorely needed to meet mounting traffic loads.

By Barton Crockett
Senior Editor

LA HULPE, Belgium — Scrambling to cope with rising traffic volumes, the Society For Worldwide Interbank Financial Telecommunication, S.C. (SWIFT) has finally cut over its SWIFT2 network, more than three years behind schedule.

According to officials with the international bank association, which runs nets used to carry most of the world's international funds transfers as well as other financial data, SWIFT2 will vastly increase capacity at a time when rising volumes are taxing system performance.

The original SWIFT net, which was cut over in 1977 and was designed to handle about 300,000 messages per day, is now carrying more than 1.3 million messages daily. Jury-rigging SWIFT1 has enabled the network to support the higher traffic volume, but SWIFT executives admit that continuing with the original architecture is out of the question.

"In short, we need SWIFT2 because we've got to manage greater capacities," said Peter Drummond, a 12-year SWIFT veteran and executive vice-president who is overseeing the SWIFT2 project.

Drummond said SWIFT2 will support an array of advanced new services, including X.400-based messaging capabilities. The network, cut over last May in a trial that included 36 banks in six countries, is expected to serve all 3,000 SWIFT subscribers by mid-1992.

Unlike SWIFT1, which was based on computers and network processors from Burroughs Corp. running proprietary Burroughs protocols, SWIFT2 will use industry-standard X.25 packet switching to shuttle network traffic between multiple Unisys Corp. mainframes.

With SWIFT2, messages are routed from local banks via dial-up or dedicated links — typically running at 9.6K bit/sec — to Unisys mainframes in one of more than 70 SWIFT2 regional processor centers.

The mainframes send back receipt notices and use packet switches from Northern Telecom, Inc. to route traffic over 56K or 64K bit/sec links to one of two main SWIFT operating centers located in Culpeper, Va., and Leiden, Netherlands.

> "In short, we need SWIFT2 because we've got to manage greater capacities."

▲▲▲

At the main operating centers, traffic is received by Northern Telecom packet switches and routed to one of many channel-attached Unisys mainframes. The mainframes log and store the transactions, route them to their final destination and monitor net performance using customized,

(continued on page 30)

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SWIFT2 completion adds needed capacity

continued from page 27

integrated net management packages (see graphic, page 27).

According to Drummond, the main advantage of SWIFT2 over SWIFT1 is that it supports higher network capacities. Basically, the capacity on SWIFT2 is unlimited, since capacity can be added by simply installing new Unisys processors in the operating centers. Each additional Unisys processor increases network capacity by 500,000 to 700,000 messages per day.

Major software changes were needed to add processors to SWIFT1, which constrained the system's capacity.

SWIFT2 also supports local access links to banks at speeds as fast as 9.6K bit/sec, compared to top speeds of 4.8K bit/sec in SWIFT1. The new net also allows SWIFT to store records of transactions for as long as four months, rather than the 10 days supported under SWIFT1.

In addition, SWIFT2 provides a platform over which more advanced applications can be deployed. For example, SWIFT plans to cut over an X.400-based messaging service called Interbank File Transfer by mid-1991, which will enable banks to send messages to one another using any format they wish, rather than the nine proprietary SWIFT message types supported over SWIFT1.

Drummond said this application could not have been offered over SWIFT1 because of limited net capacity and a reliance on proprietary protocols.

Even though SWIFT2 is vital for SWIFT, changes in network design and mistakes in project management delayed the launch of the facility for nearly three years.

"I guess you could say we made all the usual mistakes you could make in a project of this scope," Drummond said. "We were a little too budget-driven, tried to build the thing without having clearly defined performance specifications and [had some problems with] change control."

One of the biggest problems, Drummond said, was that SWIFT decided to drop a proprietary network scheme half-way through designing the net in favor of one based on X.25 packet-switching protocols.

Drummond said that when SWIFT engineers originally sat down to map out SWIFT2 in 1981, they planned to use only Burroughs proprietary net protocols since they would be compatibile with the Burroughs computers used on SWIFT1.

But after doing a large chunk of the initial SWIFT2 design work, Drummond said, X.25 packet switching emerged as a popular, reliable network transport protocol. SWIFT eventually decided to swap out the proprietary network with one based on X.25 protocols in part because X.25 would better support a multivendor environment.

Drummond said this change, along with difficulties designing SWIFT2 transaction processing software, delayed the launch of the new net.

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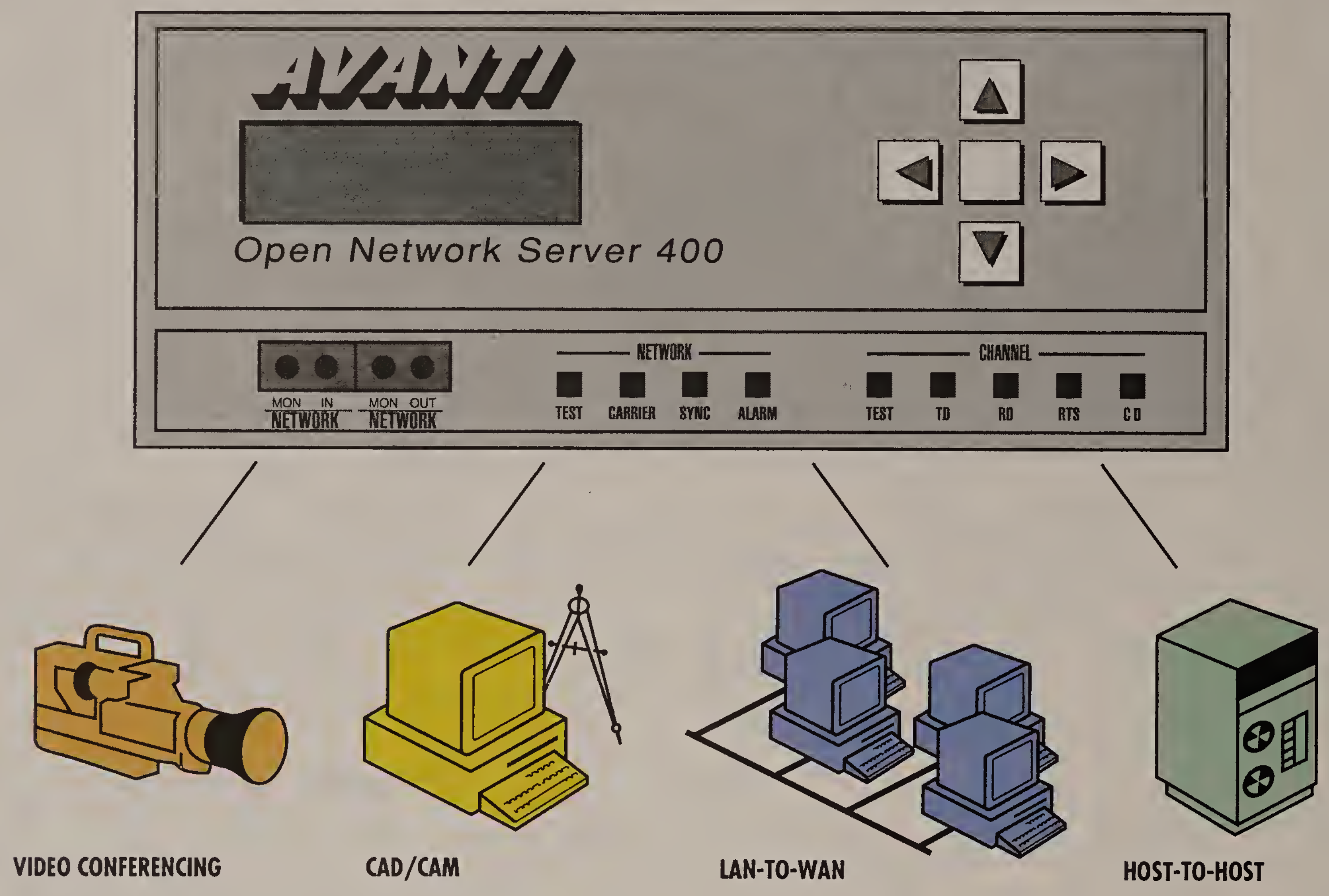

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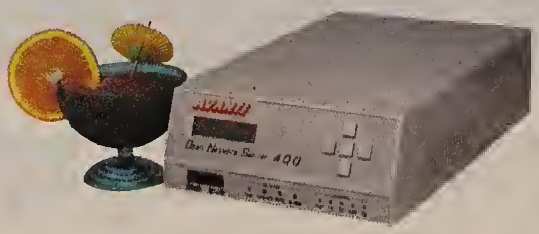

Eastern Europe to benefit from rules

continued from page 27

change from the past, when most special requests were summarily denied.

Requests for special licenses will typically be processed in less than eight weeks, Rosati said.

The new COCOM rules also removed virtually all restrictions on token-ring and Ethernet networks. Previously, Rosati said, users could only bring these local-area networks into the Eastern Bloc if they were used at transmission speeds below 10M bit/sec.

He added that tight restrictions were placed on how users could configure these systems.

> The new COCOM rules also removed virtually all restrictions on token-ring and Ethernet networks.
>
> ▲▲▲

Now local nets that support speeds up to 20M bit/sec are permitted, and fewer restrictions are slapped on local net configurations.

WAN rules relaxed

A source inside the U.S. Department of Commerce, who requested anonymity, added that restrictions on wide-area network devices were also relaxed.

The Commerce Department source said that virtually all restrictions on satellite earth station equipment were dropped. Previously, strict limitations were placed on the radio frequencies within which satellite earth stations could operate.

Export restrictions on modems with error-correction capabilities were also dropped, and users were given permission to export multiplexing equipment into Eastern Europe that supports speeds up to 45M bit/sec.

Users are still not allowed to bring packet-switching equipment into most Eastern Bloc countries without getting a special license, the source said. He added that this restriction applies to any network device that packetizes voice or data signals, including Integrated Services Digital Network equipment that uses packet-switching to send signaling data over the ISDN D channel.

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PRODUCTS & SERVICES

THE LATEST OFFERINGS FROM VENDORS AND CARRIERS

First Look

Harris adds to SNA connectivity product line

Harris Adacom Corp. last week bolstered its Strategy line of IBM Systems Network Architecture products by adding support for 16M bit/sec local-area networks and announcing a new SNA-to-TCP/IP gateway and three token-ring media access units.

The Strategy series includes the 9574 IBM-compatible terminal controller, the 9577 print server and the 9570 gateway, which supports SNA token-ring connections to LANs based on a variety of protocols, including Network Basic I/O System, the Transmission Control Protocol/Internet Protocol and Novell, Inc.'s NetWare Internetwork Packet Exchange (IPX).

All three Strategy products, introduced in June, can now be upgraded to support 16M bit/sec token-ring LANs by installing Harris Adacom software and an interface from Proteon, Inc. The upgrade costs $750.

The company also extended the Strategy line to include the **9770 Intelligent Token-Ring Gateway,** a device that provides SNA-to-TCP/IP conversion.

Since the gateway only supports this one type of conversion, it provides superior performance to the 9570, which supports a number of other protocols.

The 9770 supports shielded and unshielded twisted-pair media. It is offered in two versions: one supporting 64 IBM SNA logical units and the other supporting 128 logical units. Those versions cost $18,000 and $20,500, respectively.

Finally, Harris Adacom unveiled the **Token Ring-228,** a family of token-ring media-access units. They are offered in three models: one supporting eight coaxial connections, priced at $595; one supporting 16 unshielded twisted-pair connections, at a cost of $1,095; and the third supporting 16 shielded twisted-pair connections, which costs $1,145.

All of the new products are available now.

Harris Adacom Corp., 16001 Dallas Pkwy., P.O. Box 809022, Dallas, Texas 75380; (214) 386-2000.

(continued on page 35)

Micom mux combines fax, data, voice over WAN links

Uses fast packet, compression technologies.

By Tom Smith
New Products Editor

SIMI VALLEY, Calif. — Micom Communications Corp. is expected to announce at the Tele-Communications Association, Inc. conference in San Diego next week a multiplexer that uses fast-packet and voice and data compression technologies to squeeze multiple voice, data and facsimile channels over wide-area links.

The Marathon 5K consists of new and existing Micom multiplexer components and can be configured for use with backbone transmission facilities ranging in speed from 9.6K to 56K bit/sec.

Although the Marathon 5K uses many of the same voice and data interfaces Micom has offered for other multiplexers, the device is based on a new CPU that makes it possible to build networks consisting of as many as six multiplexers. Earlier Micom fast packet multiplexers could only support point-to-point configurations and speeds as fast as 19.2K bit/sec.

The Marathon 5K has six expansion slots, one of which houses the Communications Control Module CPU. That board has six RS-232 ports, four of which can support local data terminal equipment such as IBM 3270 terminals and local-area network bridges.

The two remaining ports can support feeder multiplexers. This means that two Marathon 5Ks connected over a wide-area link could each support two feeder multiplexers providing for a total of six multiplexer nodes.

The other slots can be used to support a mix of data and voice interfaces.

The data interfaces, called Common Expansion Modules (CEM), support six or 12 RS-232 ports. The six-port card, CEM/6, was previously offered, while the 12-port interface, CEM/12, is a new release. A maximum of four data interfaces can be installed in the Marathon 5K. Combined with the four RS-232 ports on the main CPU board, the Marathon 5K can support 40 data ports.

All data is compressed at a ratio between 2-to-1 and 4-to-1.

▲▲▲

All data is compressed by the Communications Control Module at a ratio between 2-to-1 and 4-to-1.

(continued on page 34)

Frontier introduces fax server for TCP/IP LANs

MILWAUKEE — Frontier Technologies Corp. introduced at NetWorld '90 in Dallas last week a facsimile server for local-area networks based on the Transmission Control Protocol/Internet Protocol and supporting IBM machines running AIX.

The company also announced a release of its Super-TCP product for use with Microsoft Corp.'s Microsoft Windows 3.0 environment. Frontier previously offered versions of this software for use with DOS and OS/2.

The fax server, LAN Fax, consists of fax interface boards, server software and client software for sending and receiving fax transmissions from users' personal computers.

The LAN Fax interface boards are offered in single- and dual-line configurations and can be installed in personal computers with Industry Standard Architecture or Micro Channel Architecture buses. A single server can support 16 fax lines.

In its initial release, LAN Fax is intended for use on TCP/IP networks supporting IBM machines running AIX. Future releases will run on IBM's OS/2 LAN Server and Novell, Inc. NetWare LANs.

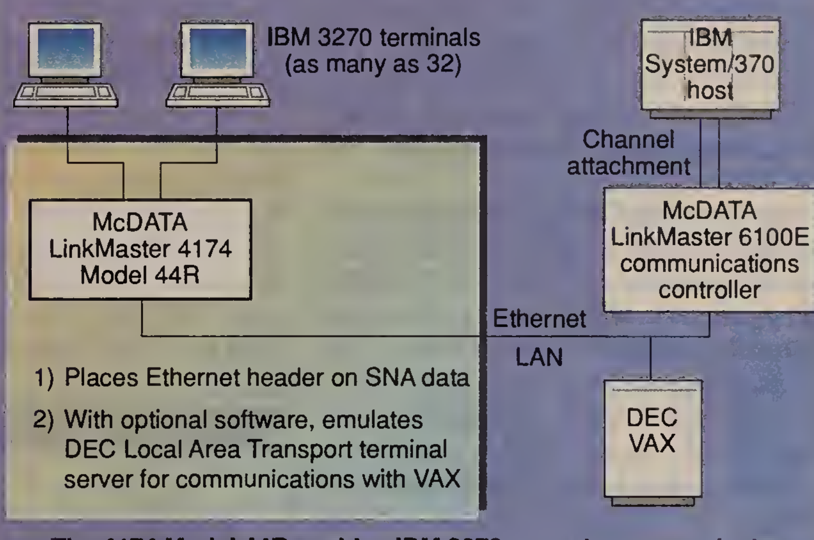
LAN Fax's interface boards monitor transmissions and report availability and usage to a network management workstation via the Simple Network Management Protocol.

The server software performs administration functions including user mailbox management, activity logging and distribution of incoming faxes.

The client software gives users icon-based send and receive capabilities. Users can also create

(continued on page 34)

SNA terminal controller integrates 3270 support into Ethernets


IBM 3270 terminals (as many as 32)
IBM System/370 host
Channel attachment
McDATA LinkMaster 4174 Model 44R
McDATA LinkMaster 6100E communications controller
Ethernet LAN
DEC VAX
1) Places Ethernet header on SNA data
2) With optional software, emulates DEC Local Area Transport terminal server for communications with VAX

The 4174 Model 44R enables IBM 3270 users to communicate with IBM and DEC VAX hosts over an Ethernet LAN.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: MCDATA CORP., BROOMFIELD, COLO.

SNA 3270 controller supports E-net link

New version of IBM-compatible terminal controller lets users integrate 3270 traffic into Ethernet nets.

By Tom Smith
New Products Editor

BROOMFIELD, Colo. — McDATA Corp. is expected to announce at the Tele-Communications Association, Inc. conference in San Diego next week a new member for its IBM-compatible terminal controller family that lets users support IBM 3270 terminal traffic on Ethernet local-area networks.

The LinkMaster 4174 Model 44R, a new version of an existing controller, comes with a built-in Ethernet interface. The device must be used in conjunction with the existing McDATA LinkMaster 6100E, a communications controller that links IBM hosts to Ethernet LANs.

The 44R also features an optional software package that enables it to emulate a Digital Equipment Corp. Local Area Transport (LAT) terminal server so that 3270 users can access 3270 and LAT hosts over the same Ethernet.

The LinkMaster 4174 Model 44R comes with a built-in Ethernet interface.

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The key enhancement to the 4174 in the Model 44R, which supports 32 IBM 3270 terminals via coaxial cable, is a built-in Ethernet interface. Users also need to install Systems Network Architecture gateway software on the 6100E.

The company previously offered 4174 models with interfaces to IBM Token-Ring Networks, Synchronous Data Link Control links and devices supporting the European X.21 protocol. Users of these terminal controllers can upgrade them to support Ethernet by installing the Ethernet interface and SNA gateway software.

The device must be used in conjunction with the existing McDATA LinkMaster 6100E.

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The new Ethernet interface, which supports both thick and thin Ethernet cabling, places an Ethernet header on IBM 3270 data so the data can be transmitted locally or remotely to a 6100E. When the data reaches the 6100E, which comes standard with an Ethernet interface, the Ethernet header is removed.

The 6100E previously supported Transmission Control Protocol/Internet Protocol and DEC's LAT protocols running on an Ethernet.

In addition, 44R users can buy optional LAT software for the de-

(continued on page 34)

Mux combines fax, data, voice over WAN

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The Marathon 5K also supports existing voice interfaces called Toll Free Cards that compress voice signals from 8K to 16K bit/sec. Toll Free Cards come in one- and two-channel versions ("Micom adds voice support to low-speed multiplexer," *NW,* July 23).

The Marathon 5K can support a maximum of eight voice channels on four Toll Free Cards.

The Toll Free Card has been enhanced for the Marathon 5K to support demodulation of fax traffic. The interface's digital signal processor will detect fax signals and demodulate them, returning them to digital form for transmission.

In terms of wide-area net interfaces, the Marathon 5K supports the Integral 56K Integrated Service Unit (ISU), external modems or DSU/CSUs, or internal modems supporting speeds between 9.6K and 19.2K bit/sec.

> The Marathon 5K supports eight channels on four cards.

▲▲▲

The company also offers a Network Management System Module, which provides two RS-232 ports and which can support an ASCII terminal to display statistics on utilization and errors, and a printer for output of those statistics.

The fast packet technology in the Marathon 5K enables the device to dynamically allocate bandwidth, assigning idle bandwidth to active channels. It is more efficient than standard packet multiplexing because it does not require error correction and detection to be performed at each intermediate network multiplexer, thus eliminating store-and-forward delays.

Pricing for the Marathon 5K and the various interfaces has been set (see graphic). All of the products are expected to be available by Dec. 1.

Micom said it plans to extend the Marathon 5K product family by providing higher speed wide-area network interfaces and interfaces that support functions including Local Area Transport and Transmission Control Protocol/Internet Protocol terminal servers, local-area network bridging and a personal computer-based network management system.

For more information, Micom can be reached by writing to 4100 Los Angeles Ave., Simi Valley, Calif. 93063, or by calling (805) 583-8600. ◪

Marathon 5K component pricing

Chassis with software	$3,000
Single-channel voice card	$1,400
Dual-channel voice card	$2,400
6-port data card	$1,200
12-port data card	$1,750
Data service unit/ channel service unit	$750
9.6K bit/sec modem	$1,295
14.4K bit/sec modem	$1,995
19.2K bit/sec modem	$2,995
Network management module	Not priced yet

SOURCE: MICOM COMMUNICATIONS CORP., SIMI VALLEY, CALIF.
GRAPHIC BY SUSAN J. CHAMPENY

Frontier introduces fax server for LANs

continued from page 33

directories of fax numbers and broadcast faxes to multiple recipients.

Frontier Technologies' LAN Fax prices start at $2,495 for hardware and software supporting a single fax line. For two channels, LAN Fax costs $3,495.

LAN Fax will be available by year end.

The other new product, Super-TCP for Windows, runs on LAN nodes that require access to TCP/IP resources, allowing users to access those resources using a graphical windows display.

The graphical capabilities provided by Microsoft Windows simplify the user's job when compared with TCP/IP software run-

SNA 3270 controller supports E-net link

continued from page 33

vice that enables it to emulate a DEC LAT terminal server. This emulation lets 3270 terminals communicate with a DEC VAX.

With this optional software, users are presented with a menu that allows them to access either the IBM or the VAX host.

The controller enables users to support as many as five simultaneous IBM sessions per terminal, or a total of 160 3270 sessions. Only 80 LAT sessions can be supported at one time because of memory limitations. Terminal users can hot-key between 3270 and LAT sessions.

The optional LAT software is expected to be available by Nov. 1 for $3,000.

Because the Model 44R, like the other members of McDATA's terminal server family, is an IBM PU 2 device, it has all the NetView management capabilities available to users of IBM terminal controllers.

The Model 44R is expected to be available by Nov. 1 for $11,800. Users of the other McDATA terminal servers can buy the Ethernet interface for $3,500.

The Model 6100E costs $26,250. Current users can receive the SNA gateway software for free.

McDATA can be reached by writing to 310 Interlocken Pkwy., Broomfield, Colo. 80021, or by calling (303) 460-9200. ◪

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ning on a DOS-based personal computer without windowing capabilities, the company said. Super-TCP supports all major TCP/IP protocols, including Telnet, File Transfer Protocol (FTP) and the Simple Mail Transfer Protocol (SMTP).

Telnet support lets Super-TCP for Windows users remotely log on to TCP/IP network hosts. FTP allows the user to access file management systems on remote hosts and ensures error-free transfer of large files. SMTP supports electronic messaging over TCP/IP nets.

Super-TCP for Windows is expected to be available by Nov. 1 at a cost of $295.

Frontier Technologies can be reached by writing to 3510 N. Oakland Ave., Milwaukee, Wis. 53211, or by calling (414) 964-8689. ◪

First Look

continued from page 33

Retix unveils local Ethernet bridge that supports 10BaseT

Retix recently introduced the **4660** local Ethernet bridge for linking two local-area network segments.

The bridge supports 10BaseT for Ethernet over unshielded twisted-pair cabling, as well as thick and thin Ethernet-type cabling.

It also supports the industry-standard Spanning Tree Protocol, which eliminates the problem of loops in internetworks that provide multiple paths between two points by selecting the best path and disabling the others.

Network managers can remotely download software revisions to the 4660 through the network.

The 4660 is currently available at a price of $3,750.

Retix, 2644 30th St., Santa Monica, Calif. 90405; (213) 399-2000.

Touchbase offers portable V.32 modem for remote laptop users

Touchbase Systems, Inc. recently introduced a 9.6K bit/sec V.32 modem for laptop computers.

Touchbase claims the **WorldPort 9600** is the first compact, battery-powered V.32 modem in the world.

The full-duplex modem, which supports both synchronous and asynchronous data transmission over dial-up lines, also supports a variety of standards for data transmission at lower speeds, including V.22bis for operation at 2,400 bit/sec and Bell standards 212 and 103 for operation at 1,200 and 300 bit/sec, respectively.

It supports the Hayes Microcomputer Products, Inc. AT command set, and Microcom, Inc. Microcom Network Protocol Class 4 error correction.

WorldPort 9600 is expected to be available in the fourth quarter this year at a cost of $899.

Touchbase Systems, Inc., 160 Laurel Ave., Northport, N.Y. 11768; (516) 261-0423.

Gateway enhances routers to support Novell's IPX over X.25

Gateway Communications, Inc. recently enhanced its family of routers, which support Novell, Inc.'s NetWare Internetwork Packet Exchange (IPX) communications over X.25 networks, with new software that supports data compression and batch file transfers.

The new **Data Compression Module,** a component of the G/Remote Bridge software, compresses data at a ratio of 4-to-1, which improves network response time to end users.

The other new component, **File Transfer Module,** combines multiple files in a single batch transfer, thereby reducing the establishment time required for individual X.25 calls.

The software is offered for Gateway Communications' G/Remote Bridge family of products.

These products package IPX data in X.25 format and route it over X.25 connections operating at speeds ranging from 19.2K to 64K bit/sec.

The new software will be available 30 days after receipt of order and is priced at $300.

Gateway Communications, Inc., 2941 Alton Ave., Irvine, Calif. 92714; (714) 553-1555.

Emulex introduces four-port interface for MCA-based PCs

Emulex Corp. recently announced a four-port communications interface for personal computers based on the Micro Channel Architecture.

The **DCP-286/MC** is targeted at large end users and OEMs that write software to support communications applications using protocols such as IBM Systems Network Architecture/Synchronous Data Link Control and X.25.

The interface card is based on an Intel Corp. 80286 microprocessor.

Like Emulex's existing communications board for Industry Standard Architecture personal computers, the new DCP-286/MC takes a single expansion slot and is based on a motherboard/daughterboard architecture.

Serial I/O is performed on the daughterboard, which can support RS-232, RS-422, RS-423, RS-485 and parallel printer interfaces.

The DCP-286/MC is currently available.

A version configured with four RS-232 interfaces costs $1,895.

Emulex Corp., 3545 Harbor Blvd., P.O. Box 6725, Costa Mesa, Calif. 92626; (714) 662-5600. ◪

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OPINIONS

VENDOR NEGOTIATION

BY NATHAN MULLER

Exposing hidden assumptions behind broad claims

The latest tidbit of wisdom being dispensed from the pulpits of the seminar circuit is that when dealing with vendors and carriers, "everything is negotiable." However, this bold assertion rests on a set of assumptions that are seldom discussed, let alone analyzed. The first assumption is that the buyer has properly defined the objective. This may sound rudimentary, but it's easy to get sidetracked when negotiating "everything."

For example, in negotiating a network management outsourcing agreement, is your objective to save money or improve the availability of information systems and communications networks? The former is certainly more attractive, especially on the eve of an anticipated recession, but it will most likely come at the expense of the latter. If competitive advantage is compromised as a result of negotiation, what have you gained?

> The first assumption is that the buyer has properly defined the objective.
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Second is the assumption that the buyer knows what alternatives exist. In the case of network management outsourcing, the buyer must become familiar with the comparable offerings of carriers, vendors and traditional service companies, as well as the large accounting and management firms. This knowledge provides the buyer with negotiating leverage on such matters as response times, service options, training, maintenance, equipment repairs and upgrades, as well as contract terms and conditions. But the more emphasis put on cost savings at the outset, the more inflexible the outsourcer is likely to become on other matters.

The third assumption is that the buyer is prepared to ask the right questions. Related to this premise is the fourth assumption — that the buyer will aim these questions at the right person. For example, asking a carrier how much it will cost to protect the entire T-1 network against every possible link failure will elicit a few smiles from the account representatives as they quote a dollar figure that doubles the cost of the network.

Pose the same question to a network designer, and there will be a different answer: In eliminating redundant T-1 lines in favor of fractional T-1 and Integrated Services Digital Network Primary Rate Interface, the T-1 network is not only totally protected, but is much less expensive despite the addition of extra circuits. Confront the carrier's representatives with this information, and suddenly they're ready to deal.

The fifth assumption is that the buyer understands technical terminology. While plain language is the preferred style of communication, the use of technical, as well as legal and financial, jargon serves critical social functions: It is a form of ritual initiation and can be used to expose what you know or don't know before serious negotiations begin.

If you use technical jargon correctly, you are treated as a peer and invited into the inner circle, where candor and fair dealing are the norm. If you don't understand the jargon or, worse, pretend to understand it by relying only on buzzwords, the inner circle is forever closed to you.

Entering into the negotiation process without adequate preparation is a move fraught with risks. Careful examination of the hidden assumptions behind broad claims such as "everything is negotiable" can save you from making serious mistakes, which can result in lost credibility among senior management and an outsourcing arrangement that is both costly and inflexible over the long term. ▣

Muller is manager of consultant relations at General DataComm Industries, Inc. in Middlebury, Conn.

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EDITORIAL

Tariff 12: evidence of a now-competitive AT&T

Anyone who thinks AT&T is still a slow-moving monolith mired in predivestiture ways should carefully assess the impact that the carrier's Tariff 12 plan has had on the long-distance industry.

When it became commercially available 3½ years ago, Tariff 12 sparked considerable controversy — precisely because it marked such a dramatic change in AT&T's approach to the way it meets large business users' needs.

Since then, AT&T has filed nearly 65 Tariff 12 deals, locking in hundreds of millions of dollars of revenue through long-term contracts with some of the nation's biggest companies.

In fact, the roster of Tariff 12 customers reads like a Who's Who of America's corporate elite. E.I. du Dupont de Nemours & Co., Ford Motor Co., American Express Co., American Airlines, Inc., General Electric Co., Prudential Insurance Co., Unisys Corp., RJR Nabisco, Inc. and Electronic Data Systems Corp. are among the major companies that have taken advantage of Tariff 12.

Why have these and other top users jumped onto the Tariff 12 bandwagon? Simply because Tariff 12 meets their needs. The custom network plans provide them with a mix of services at stable prices over the long term with significant volume discounts.

In addition, many customers have been able to arrange for specially tailored network management services under the Tariff 12 banner.

AT&T's rivals also offer custom network deals, and they continue to meet with success in offering them. But Tariff 12, which began as a response to competitors' plans, has evolved into AT&T's best weapon in the high end of the business communications market.

Tariff 12 has reshaped competition on the most lucrative portion of the proverbial long-distance playing field.

Interestingly, the growing impact of Tariff 12 has coincided with the slowing of AT&T's market share decline, according to recent Federal Communications Commission figures.

What's more, AT&T apparently intends to apply Tariff 12 to a broader range of users. Recently, the carrier signed its smallest Tariff 12 contract to date — a three-year deal reportedly with Adolph Coors & Co. worth just over $1 million. That contract was only half as large as AT&T's smallest previous Tariff 12 arrangement.

While AT&T still has some nagging problems to resolve with Tariff 12 in the billing and administrative arenas, it's clear that its custom network arrangements will continue to have a dramatic and ever wider impact on the long-distance market for a long time to come. ▣

OPINIONS

AOS PROVIDERS

BY ALAN PEARCE

The FCC's about to take a tiger by the tail

The Federal Communications Commission has been besieged with complaints about alternative operator services (AOS) providers for the past several years. As a result, the FCC is threatening tough regulation in a recently launched Notice of Proposed Rule Making.

AOS defenders point to the long list of imaginative and innovative services that AOS companies have developed. This includes foreign language translation, conference calling, services for the deaf and others with physical handicaps, computerized Yellow Pages, voice response systems, locator services, automatic completion of calls to numbers that have been changed and even some emerging information services.

Defenders say that public policymakers should allow the industry to police itself against the alleged abuses of the past.

AOS detractors, which include public policy powerhouses such as the FCC, the U.S. Congress, state regulators, and consumer and user groups, insist that so many of these companies have price-gouged captive markets that they deserve to be regulated and, in some cases, driven out of business.

The battle lines have been drawn, and the looming policy war is likely to go all the way to the Supreme Court.

According to Stuart Whitaker, author of "Operator Services Market Study," a research study on the evolving AOS industry, "If the industry segment is to survive the next four to five years, several painful business and regulatory problems must be successfully resolved — including billed party preference, call blocking, prevention of fraud, fair competition between regulated companies (AT&T and the local telcos) and nonregulated companies (the AOS providers), the development of new enhanced services and the speedy resolution of consumer complaints."

The AOS industry was stimulated by the breakup of AT&T. AOS firms, competing with AT&T, the regional Bell holding companies and the independent telephone companies, began to offer services in 1986 to hotels, motels, airports, hospitals and universities, where the end users are considered captive telephone customers.

These new companies are credited with bestowing benefits on the public, such as credit card acceptance, multilingual operators, automated message services and greater accessibility of telephones.

> The looming policy war is likely to go all the way to the Supreme Court.
>
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However, the public has also encountered numerous problems, including price gouging, technical difficulties and a great deal of misunderstanding and mistrust.

In its current rule making, the FCC wants to resolve the following problems:

- **Billed party preference** — a system under which 0+ calls placed from pay phones would be routed to the long-distance carrier chosen by the caller. The FCC favors this approach; AOS providers oppose it. AOS providers began operations in 1986 largely to service the so-called COCOT — coin-operated, customer-owned telephone — industry segment.
- **Call blocking** — a method by which AOS providers prevent callers from reaching their carrier of choice. Under the FCC proposal, all call blocking would be illegal.
- **User information** — the FCC wants to require all AOS companies and those who use their services to provide information and notification to consumers about the AOS' identity, practices and rates.
- **Equipment** — the FCC plans to require that new and existing equipment have or be modified to have the capability of providing access to interstate common carriers via each of the access-code dialing methods.

However, according to Whitaker, because of the partnership that exists between AOS providers and their subscribers, the FCC may be in for a surprise if it plans to regulate that segment of the industry.

"The commission is about to find out that the major hotel chains, for example, will not simply sit back and be told how to serve their customers' telecommunications needs," Whitaker explained. "For this reason, legal experts are predicting that this rule making will eventually go before the U.S. Supreme Court. Many AOS subscribers have the resources, and the will, to fight."

For their part, the AOS firms are primarily engaged in the provision of operator services as a stand-alone business. As such, they regard themselves as industry participants and are generally familiar with the FCC and its regulatory methods.

Despite its public policy problems, the AOS segment of the telecommunications industry is vital and will continue to survive. But if competition is to prosper, industry participants have to get with it; they cannot, and must not, exploit users. This axiom applies to both AOS providers and their subscribers.

During the difficult regulatory and legal battles that lie ahead, AOS companies must continue to develop new services, expand markets and keep a close watch on public policy threats at the federal and state levels. ◩

Pearce is president of Information Age Economics, Inc., a telecommunications research firm in Washington, D.C.

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TELETOONS

BY FRANK AND TROISE

Got a minute to talk about your memo of last week on "How to Calm Down an Angry User"?

LETTERS

Where's the beef?

As an avid reader and strong supporter of your publication, especially of your coverage of current regulatory and legislative trends in telecommunications, I was disappointed with your interview with Phillip Evans, incoming president of the International Communications Association (ICA) ("New ICA chief sees challenges ahead," *NW,* June 25).

In the past, I have looked forward to these interviews with opinion leaders and policymakers because they provided a forum for the interviewee to expand on his or her personal philosophy and an opportunity for your readers to gain some insight into that philosophy, the person being interviewed and important current trends in telecommunications.

These interviews were always highly substantive and thought provoking; they kept the reader on the cutting edge of industry thinking.

Unfortunately, the Evans interview fell short of your usual standard. Not only was the piece less substantive than past efforts, it was virtually nonsubstantive. The questioning was restricted almost entirely to matters of organization; the timely, critical issues in telecommunications were not explored at all.

Evans is in a position to wield a considerable degree of influence on the formulation of telecommunications policy, and he undoubtedly has a vision of the direction that he would like to see that policy take.

Yet your questions focused on things like the structure of ICA, its international focus and the attendance figures for its annual conference. Even when questions were asked that could have elicited meatier responses, no follow-up was accomplished to draw out those responses.

(continued on page 42)

Network World *welcomes letters from its readers.*

Letters should be typed, double-spaced and sent to Editor, Network World, *161 Worcester Road, Box 9172, Framingham, Mass. 01701.*

Letters may be edited for space and clarity.

Business nets go to sea

How maritime companies use networking technology to stay afloat

The task of managing business communications is seldom easy, but consider the task facing telecommunications managers for maritime shipping concerns.

Their primary users are aboard relatively tiny floating platforms on a trackless expanse of water, constantly vulnerable to the most extreme weather conditions and corrosive salt, air and water. Their business — and their users' lives — depend on uninterrupted, 24-hour-a-day data and voice feeds for updated weather information and navigation, as well as standard daily business communications.

Because ships are moving targets, traveling beyond the range of land-based communications for days or weeks at a time, it has been difficult to integrate them into corporate communications networks. But mobile satellite systems are making ships reliable nodes on integrated maritime and land-based networks.

About 50% of maritime vessels use some form of satellite communications, according to Warren Zeger, vice-president of law for the World Systems Division of Communications Satellite Corp. in Washington, D.C.

Ships sailing in international waters are required by the 1974 International Convention for the Safety of Life at Sea to carry high-frequency radio equipment, and smaller coastal and pleasure craft comply with this convention to be compatible with maritime industry communications systems. But this convention has been amended recently so that, beginning in 1992, ships will be able to replace their old Morse telegraphy equipment with satellite terminals.

Compared to high-frequency radio transmissions, satellite transmissions are much less vulnerable to weather and atmospheric disturbances and to delays in establishing connections. They also offer private-line services and coverage that spans entire oceans.

The vast majority of satellite services to ships are provided by the International Maritime Satellite Organization (INMARSAT), a 58-nation consortium headquartered in London. INMARSAT operates eight satellites — three primary and five backup — over the Atlantic, Indian and Pacific oceans, providing services to more than 10,000 vessels.

INMARSAT's satellites transmit voice, telex and data, including facsimile and compressed video signals, between ships and a global network of 20 coast earth stations. It is an on-demand service using Time-Division Multiple Access (TDMA) transmission over 3-kHz voice-grade analog channels in the L-band mobile satellite frequencies.

(continued on page 41)

Herbst is a free-lance writer based in the Washington, D.C. area.

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HOW TO CROSS THE NEXT NETWORK FRONTIER

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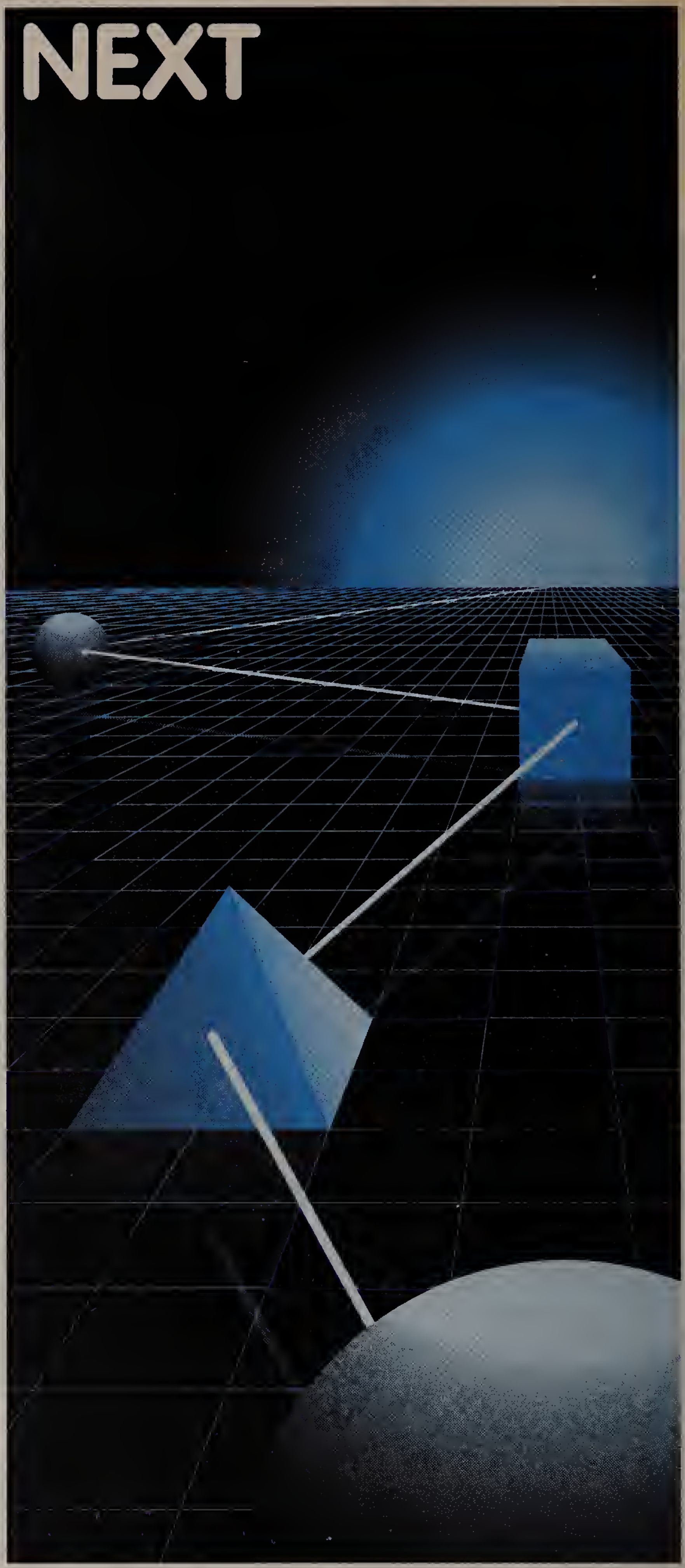

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C. Please Answer ALL Questions, Sign & Date the Form.

1 Industry: (check one only)

- 01. ☐ Manufacturers (other than computer/communications)
- 02. ☐ Finance/Banking
- 03. ☐ Insurance
- 04. ☐ Real Estate
- 05. ☐ Healthcare Services
- 06. ☐ Legal
- 07. ☐ Hospitality
- 08. ☐ Retail/Wholesale Trade
- 09. ☐ Transportation
- 10. ☐ Utilities
- 11. ☐ Education
- 12. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
- 13. ☐ Government State/Local
- 14. ☐ Government Federal
- 15. ☐ Military
- 16. ☐ Aerospace
- 17. ☐ Consultants (independent)
- 18. ☐ Carriers
- 19. ☐ Interconnects
- 20. ☐ Manufacturers (Computer/Communications)
- 21. ☐ VAR/VAD/Systems House
- 22. ☐ Distributor, Computer Related
- 23. ☐ Distributor, Communications Related
- 24. ☐ Other ____________________

2 Job function: (check one only)

- 1. ☐ Networking Management (Responsible for both voice & data)
- 2. ☐ MIS Management (VP, Dir., Department Head)
- 3. ☐ Corporate Management (Chairman, President, Owner, General Manager, CEO, CIO, VP)
- 4. ☐ Data Communications Management (Responsible for data only)
- 5. ☐ Telecommunications Management (Responsible for voice only)
- 6. ☐ Financial Management
- 7. ☐ Engineering Management
- 8. ☐ Consultant (Independent)
- 9. ☐ Other ____________________

3 What is the scope of your involvement in purchase decisions for Network/Communications products + services? (check one only)

- 1. ☐ Enterprise Wide (Organization/Subsidiary/Division)
- 2. ☐ Multi Enterprise (Consultants)
- 3. ☐ Department Wide

4 What is the total number of sites for which you have purchase influence?

- 1. ☐ 100+
- 2. ☐ 50 - 99
- 3. ☐ 20 - 49
- 4. ☐ 10 - 19
- 5. ☐ 2 - 9
- 6. ☐ 1

5 Your primary responsibility: (check one only)

- 1. ☐ Both Data + Voice
- 2. ☐ Data Networking Only
- 3. ☐ Voice Networking Only
- 4. ☐ None

6 Which transmission media do you use in your network: (check all that apply)

Public:
- 01. ☐ Switched-Based (DDD, Wats, Megacom, etc.)
- 02. ☐ Leased Line (not including T-1)
- 03. ☐ T-1
- 04. ☐ Fractional T-1
- 05. ☐ T-3/SONET
- 06. ☐ Broadband
- 07. ☐ ISDN

Private:
- 08. ☐ Satellite
- 09. ☐ Microwave
- 10. ☐ Fiber Optic

7 Is your network: (check all that apply)

LOCAL AREA NETWORK
- 1. ☐ Local (within building)
- 2. ☐ Local (in a campus environment)

WIDE AREA NETWORKS
- 3. ☐ International
- 4. ☐ National
- 5. ☐ Regional (several states)
- 6. ☐ Metropolitan

8 What is your network architecture? (check all that apply)

- 1. ☐ SNA
- 2. ☐ DECNET
- 3. ☐ OSI
- 4. ☐ GOSIP
- 5. ☐ MAP/TOP
- 6. ☐ TCP/IP
- 7. ☐ DCA (UNISYS)
- 8. ☐ OTHER ____________

9 What is your LAN Operating System? (check all that apply)

- 01. ☐ 3COM (3+, 3+open)
- 02. ☐ LOCAL TALK (APPLETALK)
- 03. ☐ BANYAN (VINES)
- 04. ☐ DCA (IRMALAN)
- 05. ☐ IBM (LAN Server)
- 06. ☐ IBM (PC LAN PROGRAM)
- 07. ☐ MICROSOFT (LAN MANAGER)
- 08. ☐ UNGERMAN BASS (NET/1)
- 09. ☐ NOVELL (NETWARE)
- 10. ☐ TOPS
- 11. ☐ PROTEON (PRONET)
- 12. ☐ OTHER ____________________

10 What is your LAN environment? (check all that apply)

- 1. ☐ 4M TOKEN RING
- 2. ☐ 16M TOKEN RING
- 3. ☐ ARCNET
- 4. ☐ ETHERNET
- 5. ☐ STARLAN
- 6. ☐ FDDI
- 7. ☐ LOCALTALK
- 8. ☐ OTHER ________

11 Which operating systems do you utilize? (check all that apply)

- 1. ☐ IBM DOS (VSE)
- 2. ☐ UNIX
- 3. ☐ OS/2
- 4. ☐ OS/2 Extended Edition
- 5. ☐ MVS
- 6. ☐ VM
- 7. ☐ VMS
- 8. ☐ XENIX
- 9. ☐ PICK
- 0. ☐ OTHER ______

12 Please indicate by vendor the number of mainframes/minicomputers installed in your network.

VENDOR	MAINFRAMES A	MINIS B
01. DEC		
02. IBM		
03. AMDAHL		
04. AT&T		
05. BULL HN IS		
06. NCR		
07. DATA GENERAL		
08. WANG		
09. HEWLETT PACKARD		
10. PRIME		
11. TANDEM		
12. UNISYS		
13. CONTROL DATA		
14. OTHER		

13 Please indicate by vendor the number of microcomputers/workstations:

A. Presently installed in your network.

B. The approximate quantity you plan to install in the next 12 months.

MICROCOMPUTER/ WORKSTATION/ VENDOR	PRESENTLY INSTALLED A	PLAN TO INSTALL NEXT 12 MONTHS B
01. PCs based on 80286 chip		
02. PCs based on 80386 chip		
03. PCs based on 80486 chip		
04. 8086/8088		
05. Macintosh		
06. RISC-based workstations		
07. UNIX-based workstations		

14 What is your planned PC standard? (check all that apply)

- 1. ☐ EISA
- 2. ☐ MCA
- 3. ☐ NUBUS (MACINTOSH)

15 For which areas outside of the U.S. do you have purchasing influence? (check all that apply)

- 1. ☐ Europe
- 2. ☐ Asia
- 3. ☐ South America
- 4. ☐ Australia
- 5. ☐ Middle East

16 Check ALL that apply in columns A and B

A) I am presently involved in the purchase process for the following products/services:

B) I plan to purchase the following products/services in the next 12 months:

Presently Involved A	Plan to Purchase B	
A	B	LOCAL AREA NETWORKS:
01. ☐	☐	Local Area Networks
02. ☐	☐	LAN Servers
03. ☐	☐	LAN Services
04. ☐	☐	Cables, Connectors, Baluns
05. ☐	☐	Bridges, Routers, Gateways
06. ☐	☐	UPS
07. ☐	☐	LAN Storage Devices
A	B	COMPUTERS/PERIPHERALS:
08. ☐	☐	Micros
09. ☐	☐	Minis
10. ☐	☐	Mainframes
11. ☐	☐	Front End Processors
12. ☐	☐	Terminals
13. ☐	☐	Laptops
14. ☐	☐	Printers
15. ☐	☐	Work Stations
16. ☐	☐	Cluster Controllers

(continued on next column)

Presently Involved A	Plan to Purchase B	SOFTWARE:
17. ☐	☐	Network Management
18. ☐	☐	Micro to Mainframe
19. ☐	☐	Network Security
20. ☐	☐	Call Accounting
21. ☐	☐	Distributed DBMS
22. ☐	☐	Communications Software
23. ☐	☐	Applications Software
24. ☐	☐	Network Operating Systems Software
25. ☐	☐	EDI Software
26. ☐	☐	E-Mail Software
A	B	DATA COMMUNICATIONS:
27. ☐	☐	Modems (over 9.6kbps)
28. ☐	☐	Modems (under 9.6kbps)
29. ☐	☐	T-1 Multiplexers
30. ☐	☐	T-3 Multiplexers
31. ☐	☐	Fractional T-1 Multiplexers
32. ☐	☐	Data Switches
33. ☐	☐	Matrix Switches
34. ☐	☐	Packet Switches
35. ☐	☐	Protocol Converters
36. ☐	☐	Network Management Systems
37. ☐	☐	Terminal Emulation Boards
38. ☐	☐	Facsimile Machines
39. ☐	☐	Diagnostic Test Equipment
40. ☐	☐	DSU/CSU
41. ☐	☐	Data Security
42. ☐	☐	Data Compression Equipment
43. ☐	☐	Network Adapter Boards
44. ☐	☐	Microwave
45. ☐	☐	Messaging Software
A	B	TELECOMMUNICATIONS:
46. ☐	☐	PBXs (over 1000 lines)
47. ☐	☐	PBXs (200 - 1000 lines)
48. ☐	☐	PBXs (under 200 lines)
49. ☐	☐	Key Systems
50. ☐	☐	Automatic Call Distributors
51. ☐	☐	Voice Messaging Systems
52. ☐	☐	Video Teleconferencing Systems
A	B	SERVICES:
53. ☐	☐	Switched Voice
54. ☐	☐	Dedicated Leased Line
55. ☐	☐	T-1
56. ☐	☐	T-3
57. ☐	☐	Digital Data
58. ☐	☐	Packet Switched
59. ☐	☐	Centrex
60. ☐	☐	Central Office Lan
61. ☐	☐	Satellite
62. ☐	☐	On-Line Information
63. ☐	☐	ISDN
64. ☐	☐	EMail
65. ☐	☐	VSAT

17 Estimated value of networking equipment and services:

A: Which you helped specify, recommend or approve in the last 12 months?

B: Which you plan to help specify, recommend or approve in the next 12 months?

A	B	
1 ☐	☐	$100 million and over
2 ☐	☐	$50 - $99.9 mill
3 ☐	☐	$25 - $49.9 mill
4 ☐	☐	$20 - $24.9 mill.
5 ☐	☐	$10 - $19.9 mill.
6 ☐	☐	$5 - $9.9 mill.
7 ☐	☐	$1 - $4.9 mill.
8 ☐	☐	$500,000 - $999,999
9 ☐	☐	Under $500,000

18 Estimated gross annual revenue of your entire company/institution: (check one only)

- 1. ☐ over $10 billion
- 2. ☐ $1 to $9.9 bill.
- 3. ☐ $500 to $1 bill.
- 4. ☐ $100 to $499.9 mill.
- 5. ☐ $50 to $99.9 mill.
- 6. ☐ $10 to $49.9 mill.
- 7. ☐ $5 to 9.9 mill.
- 8. ☐ under $5 mill.

19 Estimated number of employees for your entire corporation:

- 1. ☐ over 10,000
- 2. ☐ 5,000 - 9,999
- 3. ☐ 2,500 - 4,999
- 4. ☐ 1,000 - 2,499
- 5. ☐ 500 - 999
- 6. ☐ under 500

20 Which of the following ISDN products do you plan to purchase in the next 12 months? (check all that apply)

- 1. ☐ Basic Rate Interface Terminal Adapters
- 2. ☐ Primary Rate Interface Equipment
- 3. ☐ Voice/Data terminals
- 4. ☐ Voice-only terminals
- 5. ☐ Data-only terminals

21 From which of the following vendors will you consider buying your PBX/Central Office Switch? (check all that apply)

A PBX	B COS	
A ☐	☐	AT&T
B ☐	☐	ALCATEL
C ☐	☐	ERICSSON
D ☐	☐	FUJITSU
E ☐		HARRIS
F ☐		HITACHI
G ☐		ROLM
H ☐		INTECOM
I ☐		MEMOREX TELEX
J ☐		MITEL
K ☐	☐	NEC
L ☐	☐	NORTHERN TELECOM
M ☐		SAMSUNG
N ☐	☐	SIEMENS
O ☐		STROMBERG-CARLSON
P ☐		TOSHIBA
Q ☐	☐	OTHER ____________________

NETWORK WORLD
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An IDG Publication

9616B

(continued from page 38)

COMSAT, a public corporation established by Congress in 1963, pioneered maritime satellite communications by launching the MARISAT satellites used by INMARSAT. COMSAT is the American signatory to INMARSAT and markets INMARSAT's services in the U.S. It operates North American coast earth stations for INMARSAT in Santa Paula, Calif., and Southbury, Conn.

"[High-frequency] radio terminals were basically designed for telephone and telex," says Jim Jancso, director of operations for COMSAT Mobile Communications. "The thought occurred to someone, 'Why not put a PC, PBX and fax on board and set up a complete satellite earth station?' COMSAT invested some research and development money in developing special shipboard interfacing equipment capable of working with all of the different models of terminals, and they actually did it."

> "You can do almost anything on board a ship now that you could do at your office."
>
> ▲▲▲

Service by satellite

Satellite systems can be used for voice and data messaging, known as Mobile Satellite Service (MSS), or to automatically determine the location of a mobile unit, known as Radio Determination Satellite Service. INMARSAT's Standard-A service is an MSS that provides a wide range of direct-dial services, including data transmission at up to 9.6K bit/sec.

Because INMARSAT users can choose which signatory's earth station to use, there is intense competition between various countries' signatories for INMARSAT customers.

"There is a lot of switching around," COMSAT's Zeger says. "Users just push one button to go to COMSAT and another button to go to some other signatory, such as the British, French or to Saudi Arabian."

Business on board

Signatories compete to provide greater reliability and more services. "In the last couple of years, we have really focused on providing some communications services, primarily telephone systems, directed at the population of a ship," Jancso says.

These services include credit card phones and fax machines located in passenger cabins or common areas where passengers and crew can easily access them at all hours, a service that provides credit card balances for on-board check cashing and slow-scan video for teleconferencing.

Other services include electronic mail, group telex transmissions, postal delivery of telexes, subscription news services delivered by telex, a switched 56K bit/sec service interfaced to AT&T's Accunet service and a dedicated line to a packet-switched node that is connected to Western Union Corp.'s World-Com service.

"Basically, you can do almost anything on board a ship now that you could do at your office," Jancso says.

Since COMSAT began providing direct public access to credit card telephones and fax machines four years ago, message traffic on cruise ships has gone up four- to fivefold, according to Jancso. COMSAT is now preparing equipment for on-board business centers where passengers will be able to use personal computers and fax machines without the intervention of a crew member.

"Fifteen years ago, passengers wanted to get away from the telephones and television," says Roar Molvig, electrical superintendent for Royal Caribbean Cruise Line, Ltd., based in Miami. "Today, the trend is to keep a bit more in touch with what's going on."

Nuts, bolts and costs

Satellite services offer clearer reception than telephone calls made via high-frequency radio. AT&T's high-frequency service "sometimes fades when the ship is moving, and you can wait 30 minutes for an operator to make the connection," says Rolf Rude, vice-president of San Francisco-based Norwegian Seabourne Cruise Line, Inc.

"Slowly but surely, we have equipped all of our ships with INMARSAT equipment," says Bill Petris, senior communications analyst for the Atlantic division of Crowley Maritime Corp. of San Francisco, the nation's third largest shipping company.

"We found that radio communications really isn't reliable for sending data," he says. "The satellite has by far the highest reliability and functionality, but this is reflected in the cost of the service; it's very expensive. We try to minimize the usage of satellite transmission by maximizing the batch mode of transmission."

Telex messages cost $4 per minute over INMARSAT's Standard-A service; all other types of transmissions cost $10 per minute. Installing a Standard-A shipboard terminal costs about $50,000.

Standard-A terminals include below-deck electronics and a stabilized platform that keeps a 3-ft. dish aimed at a satellite despite the motion of a floating ship. The size and weight of the radome-covered antenna unit generally limits the use of Standard-A equipment to vessels of more than 45 feet in length.

New terminals coming

The relatively high costs of INMARSAT's services have given it and competitors an incentive to provide less expensive alternatives. For smaller craft, COMSAT later this year plans to offer new Standard-C terminals. Considerably smaller, lighter and less expensive than Standard-A units — and with no stabilized platform — Standard-C uses a small omnidirectional antenna with no moving parts.

The entire Standard-C terminal, including both antenna and below-deck electronics, weighs less than 10 pounds and costs in the range of $5,000 to $10,000, Jancso says. It provides only digital messaging in switched data, E-mail or telex format, transmitted at 600 bit/sec to a store-and-forward switch at a coast earth station.

The transmission cost is about 1 cent per character or, if messages are sent in a 256-bit signal called a data report, about one-third of a cent per character.

The low cost and small size of Standard-C equipment will lead to widespread adoption of this technology in mobile terrestrial as well as maritime communications, according to Jancso. At present, about 50,000 vessels in the maritime industry are not using satellite communications because of their small size or the cost of the equipment, he says.

"[Standard-C] can be used on trains, trucks, cars and buses, as well as recreational boats," Jancso says.

INMARSAT will begin launching a second generation of satellites, INMARSAT-2, later this year. These will increase the system's capacity by about threefold and will allow for more complete global coverage.

By 1992, INMARSAT plans to replace Standard-A service with a digital version called Standard-B. A voice-only version of this service, called Standard-M, will be marketed to smaller craft.

User networks

Owners of larger fleets, which usually operate on the high seas using INMARSAT, set up their own hubs to interconnect a complex web of ports and other land-based facilities, company and agents' offices, and various equipment, including ships and vehicles.

New Orleans-based Lykes Bros. Steamship Company, Inc., a global shipping firm with 28

(continued on page 42)

From the sky to the sea

The International Maritime Satellite Organization (INMARSAT) may be getting competition from both air and land.

A number of firms are preparing to offer a digital aeronautical mobile satellite service (MSS) for airplane passengers and crew. The service depends on a new antenna, developed by E.B. Nera of Norway, that allows communications between INMARSAT satellites and airplanes in flight.

At least one of the firms preparing an aeronautical MSS, an international consortium that includes Culver City, Calif.-based IDB Communications Group, Inc., has announced plans for a worldwide maritime MSS using the same technology.

Currently, IDB provides satellite uplinks for live remote transmissions from ships by radio and TV broadcasters using portable Ku-band earth stations that can be stabilized to compensate for a ship's motion.

The satellite footprints of MSSs licensed to serve the U.S. domestic market — providing services primarily for mobile terrestrial units — also extend into U.S. coastal waters and inland waterways. As a result, these systems provide an alternative to INMARSAT in coastal and inland waters.

Two competitors

Two firms marketing competitive services are Geostar Corp. of Washington, D.C., and Qualcomm, Inc. of San Diego.

■ **Geostar** — Geostar became the first satellite services provider to compete with INMARSAT in coastal waters when it leased two satellite transponders in 1983. Geostar's focus has been land-based mobile communications for the trucking industry, but its terminals can also be installed on ships without modification.

Geostar System 2C terminals weigh about 15 pounds, including an omnidirectional satellite dish that is less than six inches in diameter. The cost for everything is about $3,000 to $4,000, according to Ken Manning, Geostar's senior director of business planning.

Similar to INMARSAT's Standard-C service, Geostar provides two-way messaging of digital data on two simplex channels. One hundred-character messages are transmitted to an L-band satellite transponder at a data rate of 15.6K bit/sec in 50-msec 4W bursts.

The duty cycle on the power amplifier limits the transmitter to one burst every few seconds, and the typical user sends one burst every hour on a routine basis. Geostar's service costs five cents per burst — one-seventh to one-twentieth the cost of INMARSAT transmissions.

Because Geostar was licensed as a position determination service, it can only transmit data. Every mobile unit message must include a description of its location, and any additional information in the message must be related to fleet management operations.

Although not as versatile as INMARSAT's service, Geostar has been put to work on a variety of marine applications. Geostar began marketing its service to maritime shipping firms this past January, and so far, it has almost 100 users.

> Geostar has been put to work on a variety of marine applications.
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■ **Qualcomm** — Qualcomm leased two Ku-band transponders for its OmniTracs MSS rather than competing for space in the crowded L-band spectrum. Ku-band transmissions require a slightly larger, movable antenna that tracks a satellite as a mobile unit moves. They are somewhat more vulnerable to interference from heavy rains than L-band.

Qualcomm terminals weigh 24 pounds, including an 11-in. dish, and they are priced from $4,000 to $4,500. They transmit messages with as many as 1,900 characters at 165K bit/sec and receive messages at 16K bit/sec.

Using Qualcomm's OmniTracs for maritime services will require a third-party service provider that can furnish a 24-hour dispatch center. This is necessary because Qualcomm does not distribute messages from its hub in San Diego and most boat owners are too small to operate their own dispatch center, according to Qualcomm's senior vice-president Andy Cohen.

"It's just not economical for someone who owns two or three boats to run their own messaging center," Cohen says.

— *Kris Herbst*

Business nets go to sea

continued from page 41

ships, routes transmissions between its ships and onshore locations through its data processing hub in New Orleans.

Messages can be directed to several hundred Lykes offices and agents throughout the world. "We have it set up so they send one transmission into our headquarters and we automatically route it to other destinations," says T.C. Thomasson, Lykes' manager of network services.

Messages from Lykes' ships, half of which are outfitted with INMARSAT terminals, are transmitted from an earth station to a dedicated IBM Personal Computer at Lykes' New Orleans hub via AT&T land lines. The personal computer is connected to others on Lykes' corporate local-area network through a token-ring card.

From there, messages either are sent to an IBM mainframe running MCI Communications Corp.'s Gateway Manager software — operating an E-mail system with more than 25 leased lines to other locations — or to a Lane Telecommunications, Inc. 9500 Miniswitch computer that sends off-network messages out over one of three leased telex lines.

These lines terminate at MCI's facilities in Fort Lee, N.J., and the Belgium Telex Exchange in Brussels and Antwerp, Belgium. The Antwerp line also carries voice and data.

Crowley's network communicates with the more than 40 Crowley operating companies worldwide and handles about seven million transactions a month.

The network interconnects "about 2,200 terminals on 102 controllers in about 40 locations in the [continental] U.S., the Caribbean, South America, Europe, Alaska, Hawaii and Puerto Rico," says Sid Smith, manager of Crowley's corporate telecommunications. "The network is linked by dedicated land, satellite and undersea circuits. Probably 80% of it is digital and 20% is analog."

Crowley's network handles about seven million transactions a month.

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Crowley's fleet comprises more than 100 vehicles and 300 vessels including 18 deep water ships, all equipped with INMARSAT terminals. Signals from Crowley's ships are sent to one of three division hub stations in Cranford, N.J., Jacksonville, Fla., or Miami. A fourth hub at Crowley's largest port in San Juan, Puerto Rico, is linked via satellite for digital 56K bit/sec and analog 19.6K bit/sec transmissions.

At the Jacksonville hub, a personal computer on a token-ring LAN is linked to an IBM 3720 mainframe at Crowley's San Francisco headquarters via two leased digital 56K bit/sec lines. An IBM 3745 Model 70 concentrator is connected to the personal computer and serves as a gateway controller.

"Typically, we bring data in from San Francisco on a 56K bit/sec digital line and distribute it from Jacksonville on 9.6K bit/sec digital lines," Crowley's Petris says. "We distribute to Jacksonville, Savannah, Ga., and Charleston, S.C., Lake Charles, La., and New Orleans, Atlanta, Mobile, Ala., and Houston."

Building the network

Assembling such a far-flung network can be difficult. "The South American pieces of our network, in particular, are quite a challenge to put together," Smith says.

"We use international satellite lines to link the host in San Francisco to a hubbing point in the foreign country," he says. "Then we'll use local domestic tail circuits to get out to outlying locations from the hubbing point. We try to put our hubbing points at places where we have some technical expertise and some local contacts with the PTT."

"Technology in South American countries is not quite as advanced as where we are used to operating," Petris adds. "Typically, the maritime industry doesn't look for a particularly modern location for its facilities. They look for the proper marine facilities — the right dock or port or whatever. Sometimes that presents a challenge to the telecommunications side because we have to scramble to take advantage of whatever is there."

Often, there are long lead times in circuit and equipment acquisition. "We brought 9.6K bit/sec transmissions into Rio de Janeiro," Petris says. "We had to break the circuit down into four 2,400 bit/sec streams, and we actually had to go dial-up for a long time until we could get the circuits in."

The business network

Like other large shipping firms, Crowley's network transmits information that is vital to day-to-day operations, including freight bookings, documentation, billing, vessel tracking, management of on- and offshore equipment, as well as intermodal scheduling and booking — all of which is integrated into one huge family of applications, according to Smith.

Crowley's system includes an accounting program that incorporates daily transmissions of payroll data from the larger ships via INMARSAT. The same transmission carries the ship's position and maintenance conditions. The sophisticated vessel and equipment management system includes maintenance logging, scheduling and all aspects of maintenance.

A vessel can call into the hub and get information on the stores for its next voyage.

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"Vessels do not communicate directly with the host," Petris notes. "We do everything in batch mode. Messages are held on disk and then sent all at once. We transmit twice a day on a regular basis."

Lykes' larger ships are being outfitted with personal computers and application software that transmit, via INMARSAT, the data used to supply and manage the ships. Daily telex transmissions report the position and condition of the ship and its cargo.

Six to eight hours before the ships reach their first U.S. port, they send a large data transmission via INMARSAT, including payroll information, status of onboard supplies and information required by port, customs and immigration authorities. This is automatically fed into a data directory to be accessed and processed by applications running on other personal computers connected to the LAN at the New Orleans hub.

A vessel can call into the hub and get information on the stores it will receive for its next voyage. "We are ready for restocking within a half-hour, whereas it used to take 1½ hours just to go through a ship's requirements by hand," says Michael DeMato, Lykes' shipboard computer programmer. The entire restocking process used to take two days.

Several providers of maritime MSSs are developing equipment to transmit this type of information via electronic data interchange.

Washington, D.C.-based Geostar Corp. has been working on translating data transmitted over its system into EDI transaction sets, and INMARSAT has demonstrated that a ship terminal can transmit data via satellite using EDI data elements developed by the International Chamber of Shipping in accordance with the International Maritime Organization's EDI for Maritime manual.

In the future, several firms plan to provide a domestic MSS to compete with INMARSAT's Standard-A voice and data service in coastal waters. Geostar has set up a subsidiary, Geostar Messaging Corp. (GMC), to establish a mobile digital data and voice service similar to INMARSAT's planned Standard-B service.

GMC's service will have to share scarce space in the L-band frequency spectrum with the American Mobile Satellite Corp. (AMSC) of Washington, D.C., which plans to orbit three L-band satellites by early 1994. AMSC will lease transponders to firms that want to provide voice services, data at up to 9.6K bit/sec and a packet network service.

AMSC satellites will use spot beams to cover Canada and the U.S., extending up to 200 miles into coastal waters and including Alaska and Hawaii, as well as Puerto Rico and the Virgin Islands.

The Telesat option

Telesat Mobile, Inc., based in Ottawa, will launch a satellite that is virtually identical to AMSC's satellites and will be interoperable with the AMSC system. AMSC's satellites will use powerfully focused spot beams that provide more capacity and allow for smaller terminals than the current INMARSAT system.

Because users and service providers will have to furnish their own earth stations, the AMSC system will allow for private networks, a feature that has attracted the interest of organizations such as law and drug enforcement agencies, according to an AMSC spokesman.

The first firm to announce MSS on AMSC's satellites is Rockwell International Corp.'s Rockwell Mobile Communication Satellite System. Rockwell says it intends to sell receivers for $2,500 and charge a flat monthly fee of $50 to $60 for the service.

Before launching its satellites, AMSC says it plans to provide an interim two-way data service from a satellite that INMARSAT will lease to AMSC once it repositions it over the U.S. This service will be similar to the Geostar and Qualcomm, Inc. services that compete with INMARSAT's Standard-C service. Data rates will be 300 bit/sec from mobile units to the satellite and 600 bit/sec from the satellite to mobile units.

As these new satellite services come on-line, they will help advance the concept of a seamless network capable of connecting resources, including maritime users, regardless of their location and whether they are fixed or moving targets.

Letters

continued from page 37

I cannot believe that your readers are interested in the internal organizational structure of ICA or the fact that its board will be doing strategic planning. In fact, I cannot see why a "senior writer" would have been assigned to conduct this interview.

You disappointed this reader — and probably others. We have come to expect much more.

Donald Rounds
President
National Consulting Strategies
Rockville, Md.

Telecom licensing

I've been receiving scores of calls from your readers concerning the excellent article by Paul Kirvan, "Beware of the dangers of engineering without a license" (*NW*, July 9).

The National Association of Radio and Telecommunications Engineers, Inc. (NARTE) has been working on this subject since eight years ago, when we first saw it was going to be one of those problems that developed as the result of deregulation.

There were a few who said we were acting like Chicken Little, but in fact our predictions have come true. It is rewarding to see that others outside our organization are beginning to agree with us that the states shouldn't require licensure of both engineers and technicians in the telecommunications field.

NARTE is beginning to receive support from other organizations, such as the Building Industry Consulting Service International (BICSI) and the Society for Technical Communication. Our group has also called for a telecommunications summit to be held on the subject of licensing, with the goal of preempting federal legislation.

In the meantime, readers should follow Kirvan's advice and write to their state and federal senators and representatives expressing concern at state efforts to license telecommunications personnel. Two key people to write are Rep. Edward Markey (D-Mass.) and Rep. Matthew Rinaldo, (R-N.J.), who have called for a General Accounting Office investigation into efforts at licensing telecommunications engineers and technicians.

One small correction to Kirvan's article: The "T" in our name stands for Telecommunications, not "Television."

Ray Thrower
President
NARTE
Waco, Texas

INTEREXCHANGE CARRIER CUSTOMER SERVICE

Keeping the customer happy

CONTINUED FROM PAGE 1
as anything that touches the customer — from the initial exposure to the carrier through ordering, provisioning and installation to ongoing customer maintenance and billing. The goal of customer service is customer satisfaction — the crucial ingredient to the success of any product or company.

The key to customer satisfaction is to provide a quality product. Each of the long-distance carriers has its own method of measuring quality, whether defined technically, in terms of error rates per second, operationally, in terms of the number of complaints received per month, or financially, in terms of the number of billing errors per 100 bills. Customer satisfaction and level of quality will become more important as other product selection factors, such as price and availability, become nonissues.

Different strokes

AT&T, MCI and US Sprint have taken fundamentally different approaches to customer service.

AT&T, for instance, tends to follow a strategy that focuses on product lines to meet customer needs. Thus, AT&T has customer service centers that specialize in Software-Defined Network (SDN), advanced 800 service features, Accunet private lines and so on.

(continued on page 46)

Briere is president of TeleChoice, Inc., a Manchester, Conn., telecommunications consultancy specializing in long-distance service analysis and competitive analysis. He can be reached at (203) 645-0471.

The Big Three long-distance companies are beefing up their customer service offerings to attract users and outpace competitors.

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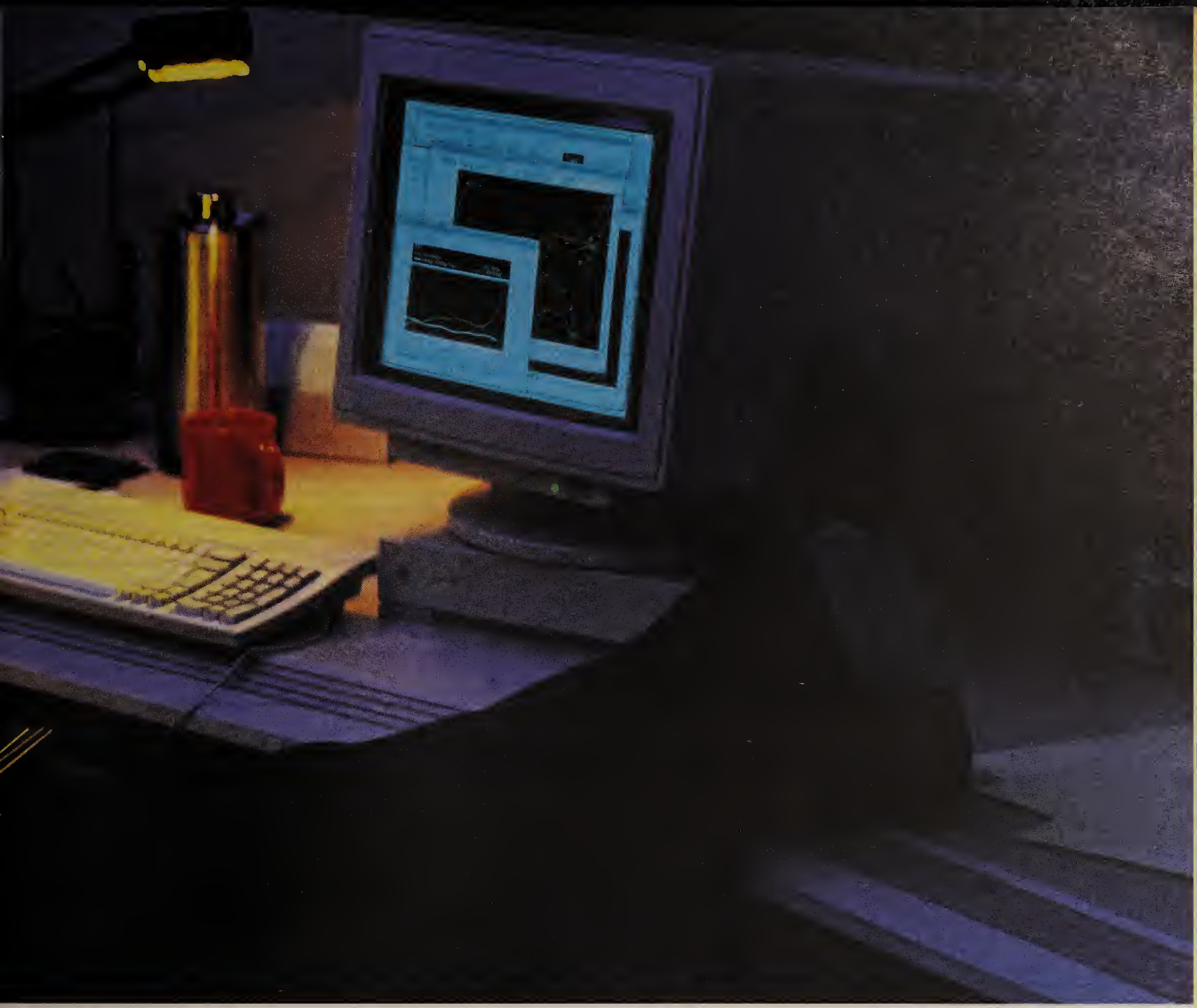

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AT&T
The right choice.

(continued from page 43)

In the area of network management, AT&T provides several options for a customer interface with AT&T, from customer-generated on-line access to letting AT&T personnel handle the entire task.

MCI shares many of the same customer service approaches as AT&T but is more likely to provide users with deeper access into the MCI system. In this way, users can service themselves in addition to relying on the support structures within MCI.

US Sprint is technology-oriented, which is not surprising given its focus on fiber optics.

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US Sprint is more technology-oriented, which is not surprising given its focus on fiber-optic technology. Thus, US Sprint uses the latest technological advances to help provide its version of customer service.

Different paths, different implementations, different resources for users — each has its advantages and disadvantages. Users need to determine which approach is most compatible with their organization.

AT&T's approach

After divestiture, AT&T had to make some quick self-assessments as to its customer service and quality capabilities. "AT&T was sometimes inclined to think that it knew what the customer wanted," explains Joe Crupi, AT&T Network Services Division quality director. "The focus too long was on trying to fix things faster rather than keeping them from failing in the first place."

One common complaint AT&T users had was that the nation's largest carrier, which had operated as a monopoly for so long, did not know how to deal with customers.

Competitors capitalized on this weakness by making it part of their strategies to be customer-responsive.

Sheer competitive pressure forced AT&T to change. The carrier is now setting standards that its rivals must meet to be competitive. AT&T is the acknowledged leader in concepts such as short call setup time and error-free transmission — discrete measurements that both users and carriers use to compare customer service programs.

Counting by numbers

Another major impetus for change within AT&T was the reorganization of the corporate structure into 19 strategic business units in the spring of 1989. AT&T gave these individual business units more operating responsibility and more decision-making authority. This move caused AT&T to focus on meeting user needs as defined by those business units.

Historically, AT&T has taken a quantitative approach to measuring customer satisfaction and quality. The carrier uses many internal measurements by which product ordering, provisioning, delivery and maintenance are gauged.

Look at Accunet private-line services, for instance. AT&T has long had a series of recognized measures of Accunet performance, such as error-free seconds, circuit failure frequency and mean time to repair. AT&T tracks these measures to assess quality for each service line.

To define customer expectations, AT&T's first step is to isolate a product's pattern of use, or how customers are using the product.

Defining a product's pattern of use is largely the responsibility of AT&T's product managers, who research user requirements and define the appropriate pattern-of-use indicators, called direct measures of quality (DMOQ). A DMOQ can be defined as the frequency with which a circuit fails, or the length of time it takes to get a switched access location installed on an SDN.

Consolidating expertise

AT&T is in the process of consolidating its Accunet T1.5 maintenance and repair work currently performed in more than 60 customer service centers around the nation into its centers in Atlanta and Walnut Creek, Calif. The logic behind this move is indicative of AT&T's overall approach to customer service.

One complaint AT&T users had was that it did not know how to deal with customers.

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By concentrating all technical support for a specific product within a few centers, AT&T hopes to create a greater level of technical expertise in one place. "We can go deeper into the individual skill sets to reduce defects and get problems solved faster for customers," says John Petrillo, AT&T vice-president of net services development and delivery.

AT&T's customer service efforts center around being more focused toward the specific customer problem. AT&T has discovered that as products become more sophisticated, customers need greater access to individual service experts.

To address this need, AT&T is reorganizing its product support into service-specific centers manned by specialists on each aspect of the problem. These technicians have the tools and systems at their disposal to handle any situation.

For instance, AT&T has the SDN Control Center in Atlanta to handle SDN users; for sophisticated 800 customers, it has the Advanced Feature Service Center in St. Louis; and for WATS and 800 service users, it has the Long Distance Repair Service Center in Jacksonville, Fla.

"If the service fails, users want to get to the person who can get it fixed quickly," says Ken Sichau, director of product marketing for AT&T's Business Communications Services business unit.

By providing different points of contact within the company for each product, AT&T is bypassing the "single point of contact" philosophy that some of its competitors use.

"Given the breadth and depth of our product line, a generic single point of contact cannot meet our customer requirements for quick response on critical telecommunications problems," Sichau says. "With AT&T, the customer gets a single point of contact, but on a product-specific basis. This minimizes the 'I'll get back to you' syndrome."

The consolidation that hit the Accunet service centers is spreading to the other service centers as well. Megacom/Megacom 800 has gone from having more than 60 sites to just four; the WATS/800 maintenance and repair facilities are being consolidated now and will probably shrink from more than 30 sites to just four in the fall; Accunet Spectrum of Digital Services centers is also expected to drop from more than 60 sites to 28. Service-specific centers for Switched Digital Service and Dataphone Digital Service will remain as is.

Within each of these consolidated centers, different groups are organized around the low-, medium- and high-end market segments of each product.

A big factor that makes such consolidation possible is the higher level of supporting technology. With remote sensing devices and sophisticated network signaling, the technical support staff does not have to be located down the street from customers.

Lessons learned

The massive networkwide failure that disrupted service for nine hours in January reinforced the importance of having a top-notch customer service program.

"[The network failure] created an urgent need to meet with customers, to understand what happened to them and AT&T, and to determine how to [stop] it from happening again," says AT&T's Crupi. "We had an opportunity to come out of the situation in a more positive stature than if we had never had a failure."

But what also happened was a fundamental change in how to deal with customer expectations about network failures. AT&T has refocused on continuity of service, as well as defect-free service. "The goal now is to prevent failures from affecting the customer, and if it affects the customer, then fix it fast," Crupi says.

MCI has split customer service along business lines according to market.

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An example of AT&T's attempts to keep problems from affecting the customer was the installation of a separate signaling network for 800 services. The system, called the Alternate Signaling Transfer Network, can take over for the primary 800 services signaling network in a matter of seconds, leaving calling traffic virtually uninterrupted.

In addition, AT&T has started instituting various service guarantees to emphasize reliability. The 800 Service Assurance plan, for instance, guarantees that AT&T will have a customer at least temporarily restored within one hour of a disruption of 800 service.

The customer can choose to have calls routed to a temporary business line-terminated 800 Readyline number, to a customized announcement or to another AT&T-served 800 location. All rerouting is free of charge.

MCI's customer service

Like AT&T, MCI views customer service as a means to differentiate itself from competitors in this rapidly maturing marketplace. MCI also ties overall product quality with customer service.

MCI operates seven customer service centers augmented now by the recently acquired Telecom*USA, Inc.'s Cedar Rapids, Iowa, and Greeneville, Tenn., locations. These centers handle inquiries from residential as well as small and midsize commercial customers. Large customers are handled out of three network management control centers.

Unlike AT&T, MCI has split customer service along business lines according to market segments — consumers (less than $500 per month); general businesses ($500 to $50,000 per month); and large accounts (greater than $50,000 per month). MCI took this approach due to the fact that each market segment has different needs.

Consumers are dealt with through a variety of channels and are supported through a single 800 number for customer service. MCI's sales offices provide support to the general business group, which is divided into three subgroups: silver, gold and platinum.

These are distinguished from one another by the degree of support and proactive maintenance required for the account.

The largest accounts in the general business group fall within the platinum group, where the differences between the sales and customer service functions become less distinct.

MCI's proactive role

Proactive customer service is a major element of MCI's customer service strategy. As the customer increases in size, MCI perceives a greater need for proactive support.

MCI does not limit the concept of proactive support to network problems. "For MCI, proactivity means trying to maximize customer savings. If billing changes because of changes to the user, MCI will proactively upgrade or downgrade the customer to the most cost-efficient service," explains Sally McMahon, MCI's vice-president of customer service.

In 1989, MCI reexamined its approach to customer service. The carrier refocused on three basic concepts that it feels summarize the most important facets of its program — responsiveness, reliability and accuracy. MCI has redesigned some of its employee training programs to emphasize these three tenets.

Like AT&T, MCI places a great deal of responsibility in each employee's hands. Whereas AT&T stresses specialization of customer support representatives, MCI stresses what it calls "empowerment," that is, giving customer service representatives more authority and ability to handle a problem themselves.

"For MCI, quality is actually

carried out by the people doing the work, so it's important to give them the proper tools to start with," says George Roll, MCI vice-president of quality.

Through technological advancement, such as automation, MCI is enabling customer service representatives to go deeper into the MCI "system" than before. For example, billing agents can go on-line and generate new invoices for customers who have lost their original or need a duplicate.

"We want to be able to leave the customer with the impression that the problem is fixed, not handed off to someone else to follow up," McMahon says. This integration is particularly true with the larger accounts. Many of MCI's largest user organizations have one dedicated employee, often working on-site with the customer.

MCI is also looking at installing other new technologies to smooth the customer support process. For example, greater data base management programming has been installed throughout the general business service centers to analyze customer calling patterns better. MCI is also looking into optical disk technology for storage of customer calling information.

In addition, MCI is seeking to differentiate itself from the competition by providing greater service benefits for customers. In October, MCI plans to announce a sweeping program of value-added benefits for all MCI services. According to the carrier, these benefits will increase the overall quality level of its products.

Generally, MCI's approach to customer service rides more on the concept of providing each of its service representatives with greater capabilities to solve customer problems.

"We acknowledge that there are going to be customer problems; our goal is to acknowledge the problem, fix it and win back customer confidence," McMahon notes.

US Sprint's approach

While AT&T's and MCI's customer service approaches are people-oriented, US Sprint takes advantage of technology to help differentiate itself from the competition. To an extent, technology has driven the long-distance business for years.

The availability of certain features and launching of products often represented the existing network's capabilities, not necessarily customers' requirements.

Now the situation has reversed itself. With an embedded base of advanced technology in place, it is more a matter of molding and repackaging the technology to meet customer needs better.

Like AT&T and MCI, US Sprint defines customer service as everything that touches a customer — billing, network quality, customer service and account maintenance. "For us, the bottom line is we need to provide high-quality service for everything that affects the customer," says Faerie Kizzire, vice-president of customer service for US Sprint.

In mid-August, US Sprint embarked on a companywide reorganization of its sales and customer service divisions. The National Markets organization was reduced from five major customer marketing and service groups to two — the Business Market Group (BMG), supporting customers with long-distance usage greater than $100,000 a year; and the Consumer Services Group (CSG), supporting residential and business customers spending less than $100,000 annually.

CSG is stratified into four levels: residential (primarily local exchange carrier billing customers), residential/small business (less than $500 per month), premier business customers ($500 to $5,000 per month) and large business ($5,000 to $10,000 per month).

The BMG market will rely on a large field service presence to assist customers, with customers that spend $30,000 or more having dedicated field representatives acting as their major point of contact with US Sprint.

Within CSG, the four different stratifications vary largely by the degree of proactivity with which US Sprint will contact the customer. The larger CSG customers will be contacted by US Sprint on a monthly basis to ensure that they are receiving maximum value from US Sprint service.

Like its competitors, US Sprint values proactivity. "It is our responsibility to find opportunities for our customers to benefit from choosing Sprint," Kizzire says.

US Sprint's technology

US Sprint uses several leading-edge technologies — such as automated attendants, voice response and document imaging — to help make the interface with the customer a faster, more efficient experience for all involved.

"We used to think that the customer always needed to talk with a live human being," Kizzire says. "However, as people

(continued on page 60)

> "We want to leave the customer with the impression that the problem is fixed, not handed off."
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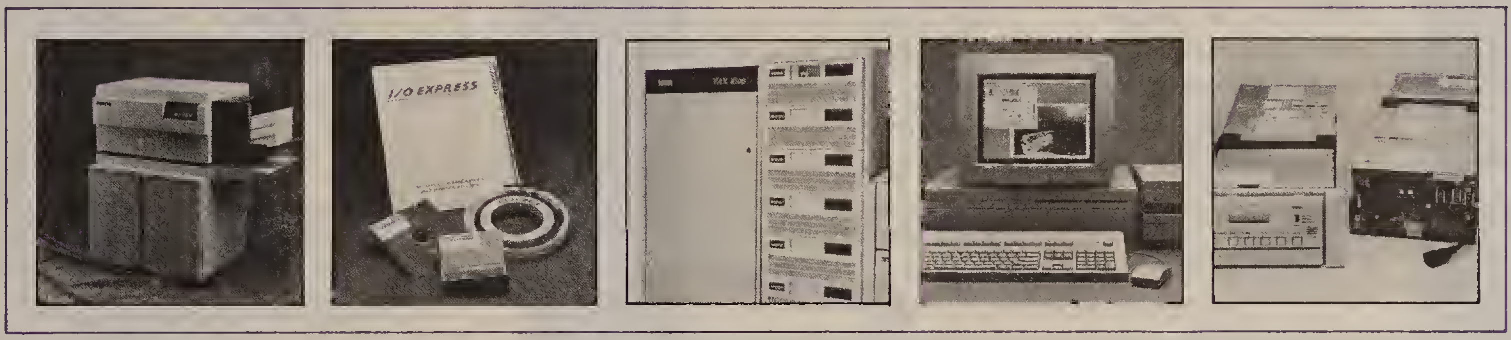

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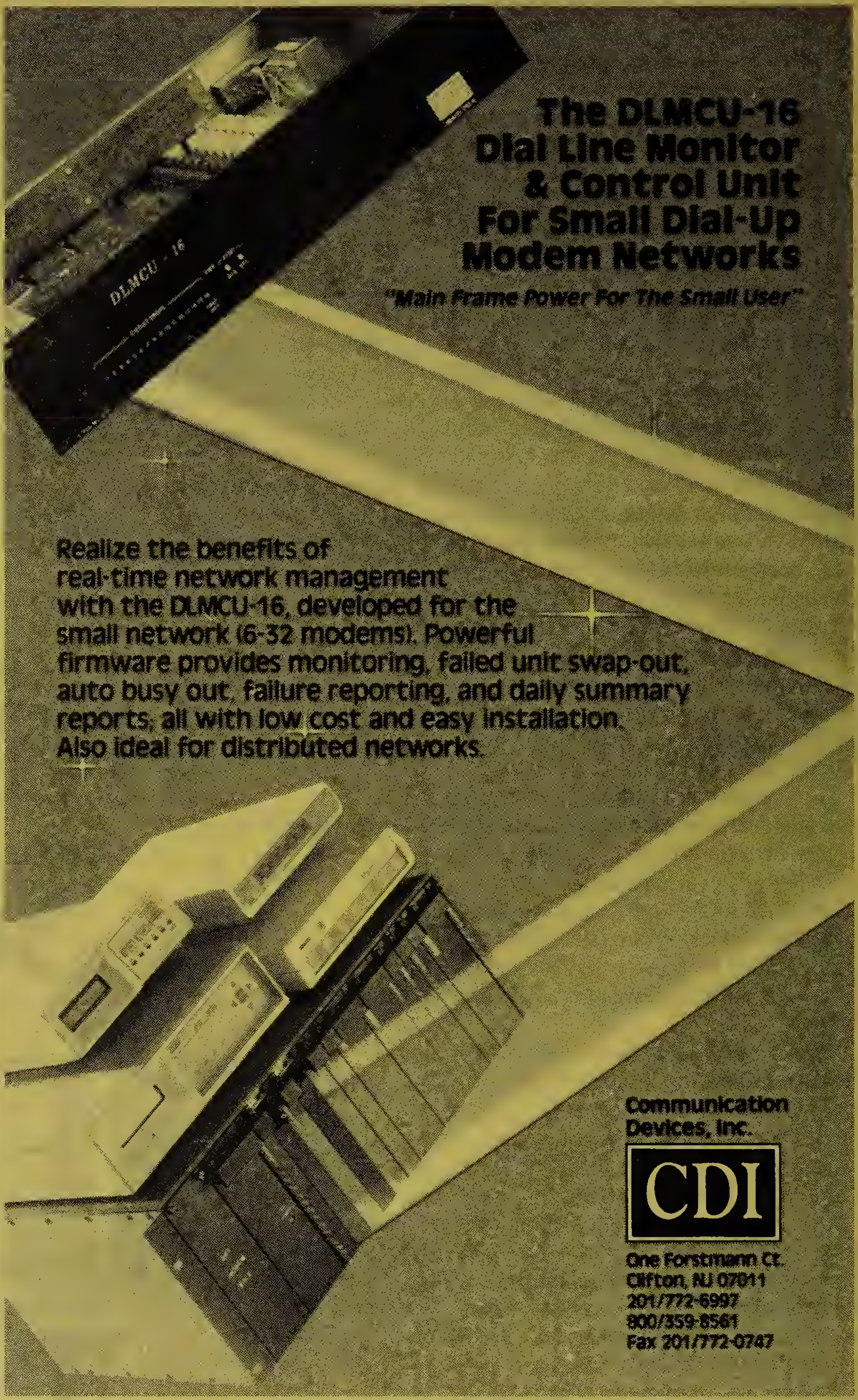

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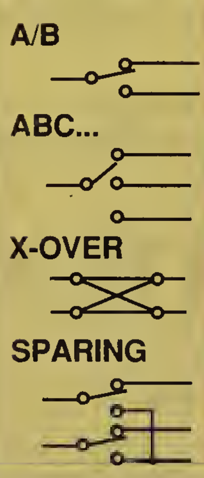

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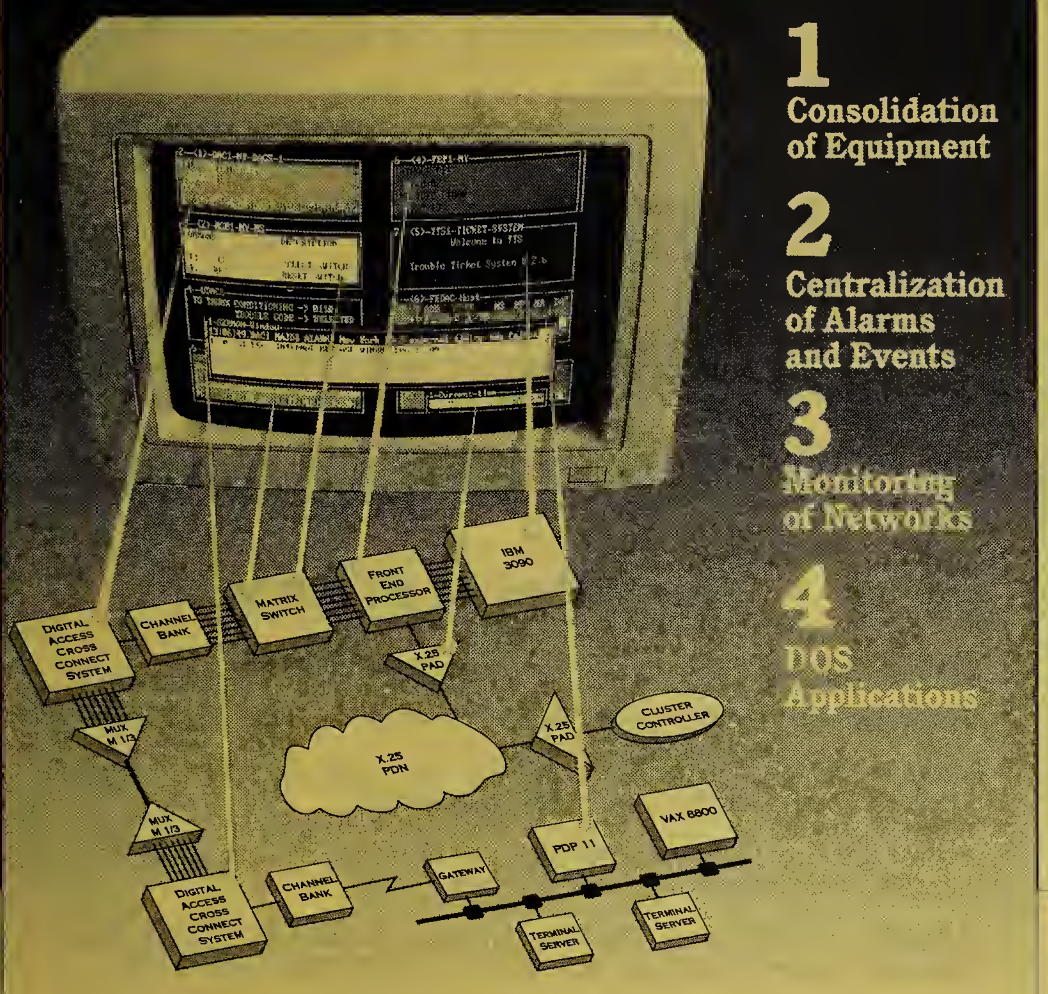

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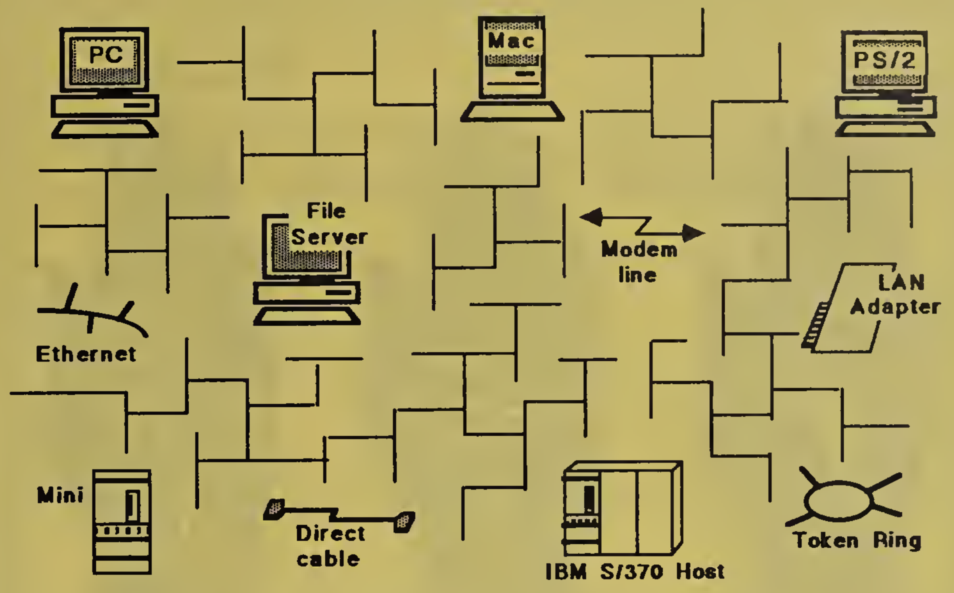

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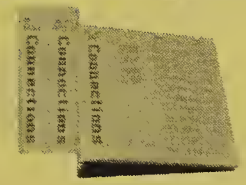

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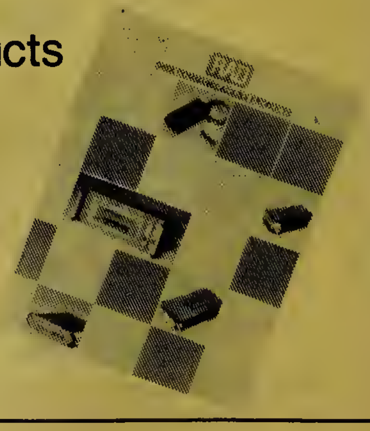

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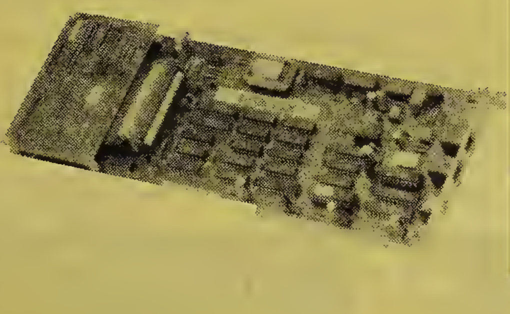

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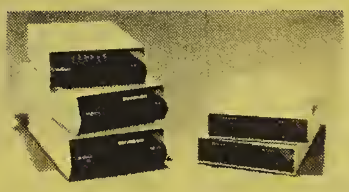

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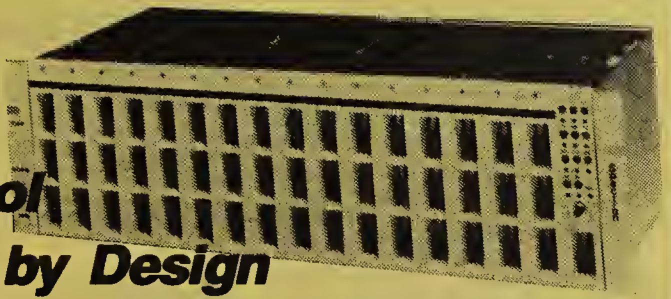

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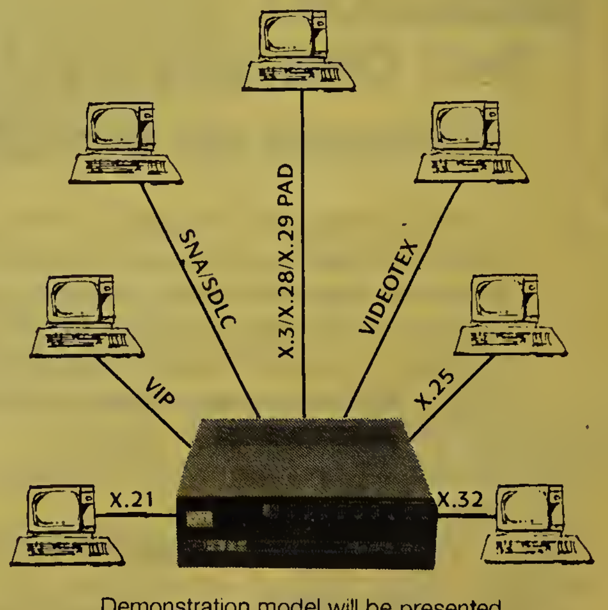

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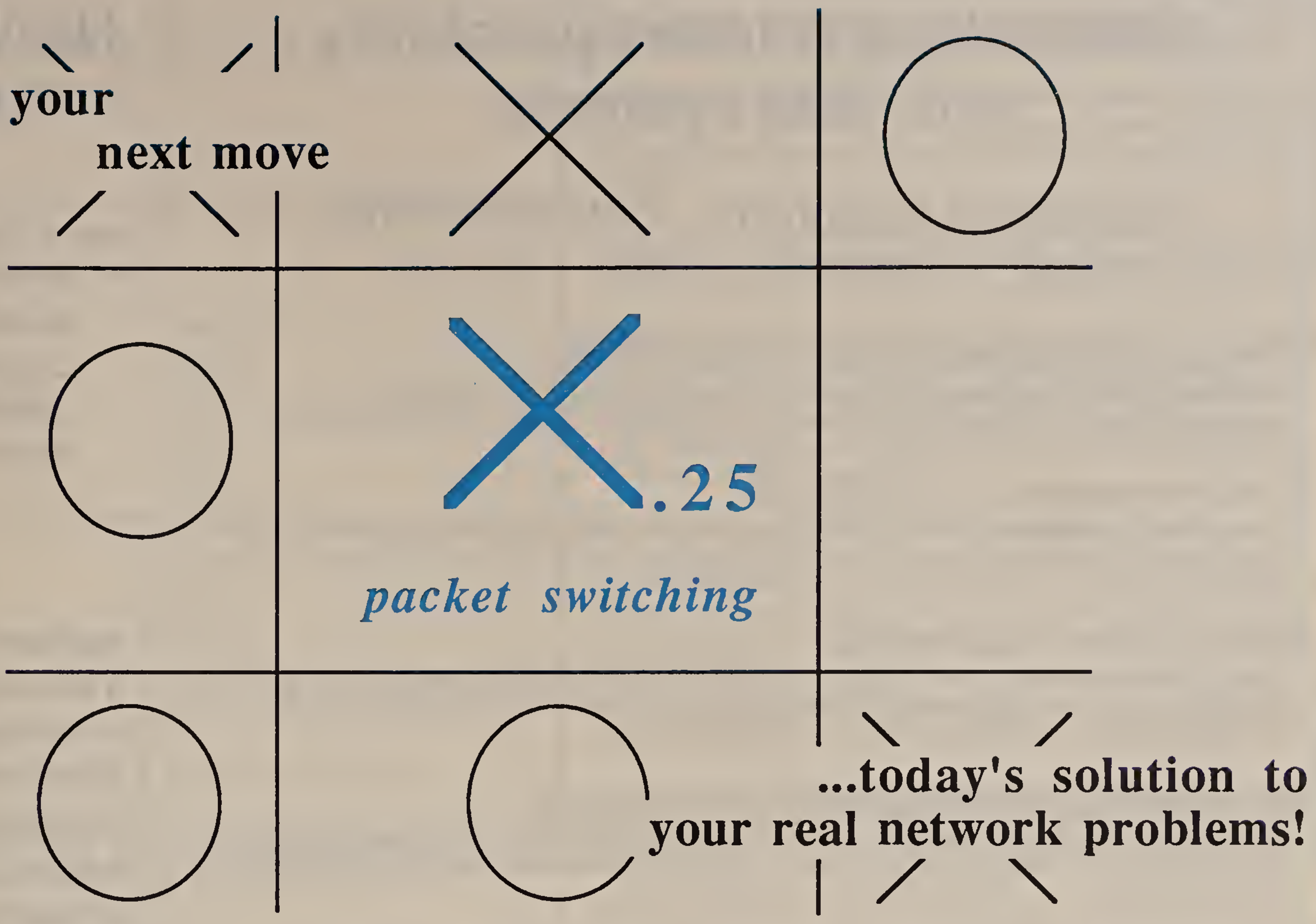
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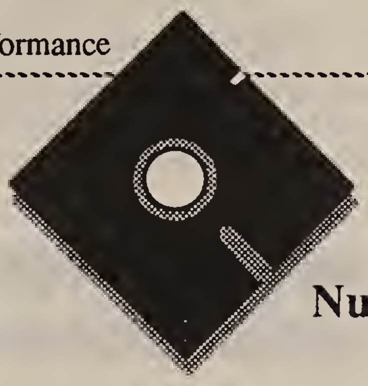

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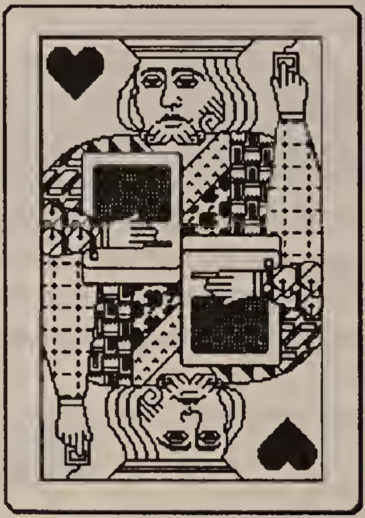

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5,600-6,999	$6.00
7,000-8,399	$5.65
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2 columns	2-5/8"	2"
3 columns	4-1/16"	3"
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6 columns	8-3/8"	6"
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For further information:
Please call Barbara Hill at 1-800-622-1108 (or in MA, 508-875-6400)

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Company listing	$500.
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Bold listing — extra	$ 50. per listing

Display Listing Rates (prices are net for 26-week period)	
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Space and copy closing for next updated issue is September 24. Listing begins in October 8 issue and runs through the April 8, 1991 issue.

For more information or the list of headings, call Eleni Brisbois, Resource Directory/Project Manager at 1-800-622-1108 or 508-875-6400.

To place your listing call 1-800-622-1108 or fax 508-651-1853 or mail your order to *Network World*, Eleni Brisbois/Resource Directory, 161 Worcester Road, Framingham, MA 01701-9172.

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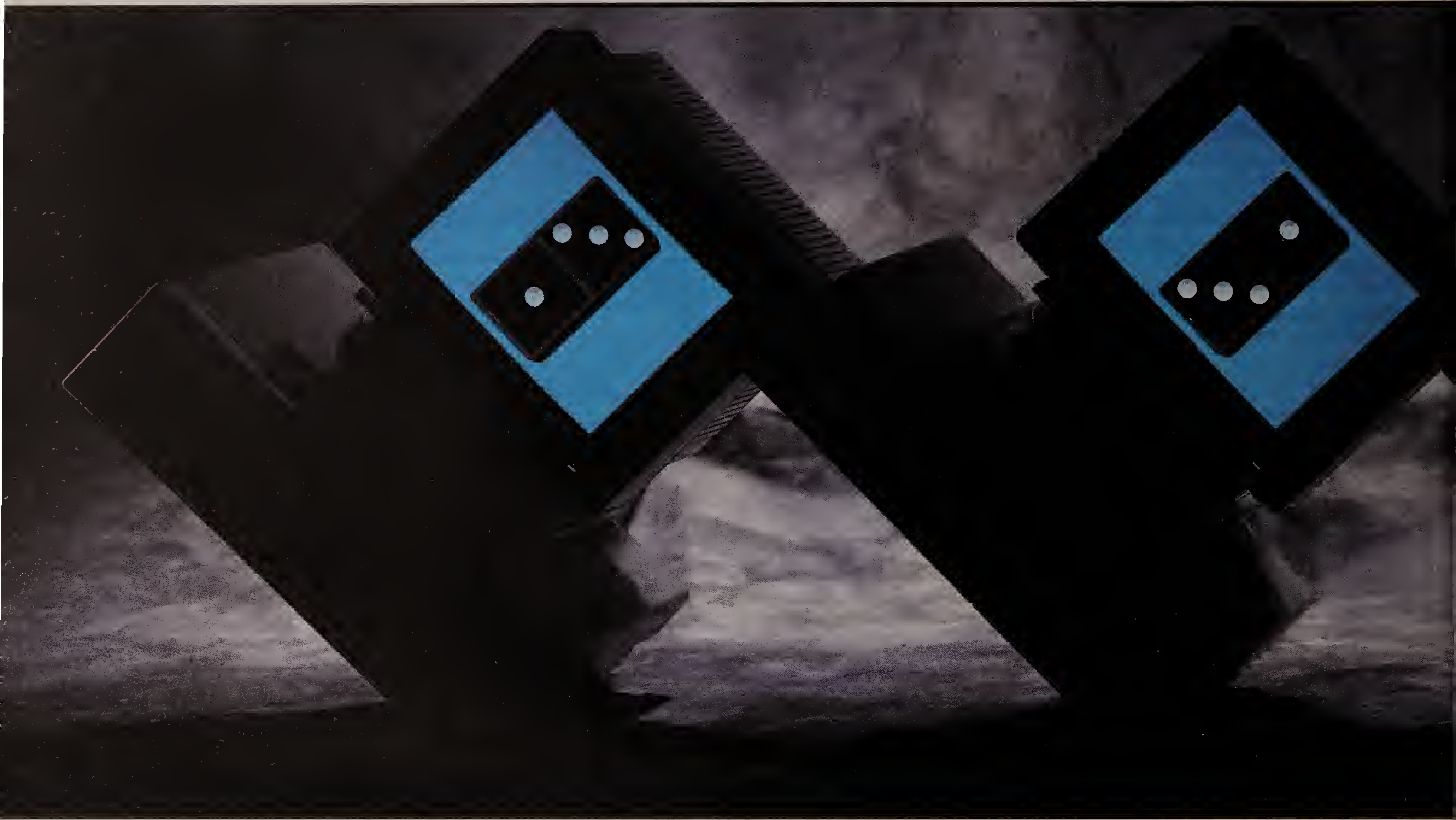

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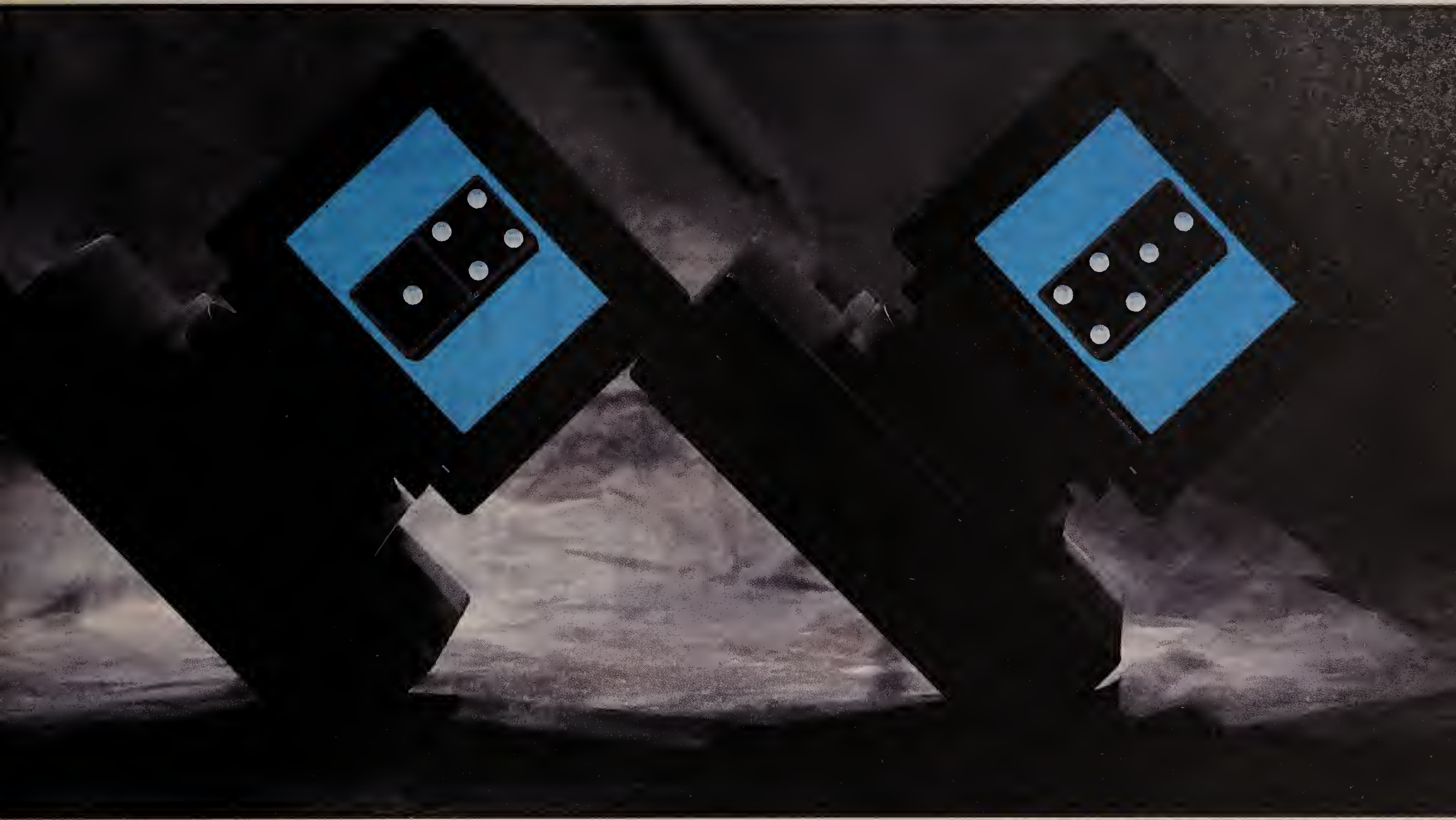
piece is out of balance, well, you know what'll happen.



customized trading partner conferences and implementation seminars to on-site technical support. You also get the benefit of our extensive experience with EDI. After all, we've been using EDI here at AT&T for more than ten years.

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So get the most advanced EDI network there is, with the most flexible systems and unsurpassed support. AT&T EDI. Because, on balance, the best EDI is the sum of superior parts.

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AT&T
The right choice.

Keeping the customer happy

continued from page 47

have become more comfortable with computers, we have started testing the use of computers more. Now customers can take action on an account or get credits to their bill through the use of [push-button] phones."

US Sprint has created multiple means to access the same functionality. Customers can use the voice response unit and dual-tone multifrequency (DTMF) technology to perform tasks themselves or cut to an operator on the same 800 number.

Customers can also submit requests via facsimile or electronic mail, and hearing-impaired customers can use circuits that employ telecommunications devices for the deaf. "Our emphasis is to give customers a choice as to how they want to interface with US Sprint," Kizzire says.

US Sprint also places emphasis on giving its personnel the power and means to make important decisions on their own. "We want the interface with US Sprint to be very easy — one 800 number, one person," Kizzire says.

Toward this end, US Sprint has replaced the dumb terminals that customer service representatives used with intelligent units that have a custom-designed supporting system called Assist. Assist gives users instant access to information that previously was contained in off-site mainframes. Moreover, the Assist system is flexible enough so that different customer service functions can access information from differently formatted screens.

> "Our emphasis is to give customers a choice as to how they want to interface with US Sprint," Kizzire explains.
>
> ▲▲▲

"The problem before was that there was no simple way to get access to information," Kizzire says. "For instance, in making a simple address change, users would have to go to multiple screens to place the information in several places. Now that is automated."

Another way in which US Sprint is using technology to speed the customer service function is through its Correspondence Processing System. When a customer writes or faxes a letter to US Sprint, the carrier scans the information into a data base, and the letter is routed electronically through the customer response system. This paperless system reduces routing time and speeds the overall response to the customer request.

US Sprint is also using laser imaging and optical disk technology to store invoice information so a customer can easily call the 800 number, access the billing information and request an invoice for a particular month. The US Sprint system can automatically reprint and mail this invoice to a customer without the intervention of a human operator.

US Sprint also uses internal measurements to track customer satisfaction but warns against weighing them too heavily. "Internal measurements are worthless unless they reflect customer values," Kizzire says. "In the end, you need to ask customers how satisfied they are with the customer service department's response — that's what matters."

Customer service trends

Unquestionably, customers are going to be pampered in the next decade. Among the tasks on the timetable for each of the carriers are:

- **More proactive maintenance.** Carriers will monitor customer networks for problems and fix them before the customer notices the problem.
- **Faster service installation.** For both dedicated and switched services, carriers are working with the local exchange carriers to automate and speed up installation.
- **Real-time network management tools.** Sophisticated network management tools will let users look into the network to order new services, rearrange existing ones, and dial up reports and information on demand.
- **Self-help customer service centers.** For those questions that don't require personal assistance, DTMF phones and voice response units will give users access to carrier information around the clock.

The key for each of the carriers appears to be execution of customer service strategies. Providing a high quality of service depends on a carrier's ability to leverage technology, capital and manpower. The problem each carrier faces, however, is how to be flexible enough to hit the moving target of user expectations.

User requirements are dynamic: They increase as previous ones are met. As the industry relies more heavily on technology to create efficiencies and flexibility in service offerings, customers expect a higher level of reliability, responsiveness and accuracy.

"All carriers see servicing as a long-term differentiator," AT&T's Sichau says. "Features and services can be replicated easily, pricing is moving to parity, and technology at best gives a carrier a six-month advantage before other carriers catch up." ◻

THE BEST READ
MOST IMPORTANT
MOST USEFUL Networ

NETWORK WORLD
The Newsweekly of User Networking Strategies
Volume 7, Number 18 An International Data Group Publication April 30, 1990

U.S. to study Soderblom token patent

By Laura DiDio
Senior Editor

WASHINGTON, D.C. — In a move that could spell trouble for Olof Soderblom's token-passing patent and monetary relief to his 50 licensees, the U.S. Patent and Trademark Office has agreed to reexamine the validity of Soderblom's patent.

In its 1½ page decision, the Patent Office stated that the reexamination request from an anonymous vendor was granted in view of earlier patents issued to four engineers — including two from AT&T Bell Laboratories — before Soderblom was granted his patent in 1981.

"A substantial new question of patentability affecting Claims 23 to 33 of U.S. Patent No. 4,493,948 to Soderblom is raised by the request," the Patent Office statement said.

The 10 claims in question deal with open and closed data transmission loop schemes and are central to the issue of whether Soderblom's existing patent is applicable to today's token-ring and Fiber Distributed Data Interface local-area network technologies.

Invalidation of the patent or amending even portions of the patent could effectively render null and void the current licens-
(continued on page 62)

What's in a name?
DEC's Distributed Name Service (DNS) process
1. User attempts to store file.
2. Not recognizing name, DNS clerk routes request to DECdns server.
3. Server locates full file name and address, and sends data to workstation.
4. Application appends text to routing information and sends file.
5. Data is stored to Smith file on remote server.

DEC describes benefits of X.500 directory services

X.500 will extend DNS offering to incorporate non-DEC devices in DECnet Phase V directories.

Later this year, Digital Equipment Corp. is expected to announce DECnet Phase V, a major revision of its network software that will support the full suite of Open Systems Interconnection protocols.

According to Jane Brewer, DEC's product marketing manager for enterprise networking within DEC's Telecommunications and Networks Organization, one key component of that announcement will be support for the X.500 directory services standard, which promises to give network administrators greater control over the hardware and software elements in their networks.

In an interview with *Network World* Assistant Managing Editor Charles Bruno, Brewer described the full potential of X.500 directory services and laid out DEC's strategy to support the technology within DECnet Phase V
(continued on page 59)

Microsoft to market LAN Manager direct

Software giant to sell NOS to Compaq resellers to stabilize LAN Manager camp, jump start sales.

By Laura DiDio
Senior Editor

REDMOND, Wash. — In an attempt to boost lagging sales of its LAN Manager network operating system, Microsoft Corp. last week announced it will sell a version of the product directly to select Compaq Computer Corp. value-added resellers.

Microsoft's decision to put its marketing muscle directly behind LAN Manager is viewed as crucial if the product is to compete successfully with Novell, Inc.'s NetWare, which commands 60% of the network operating system market today. LAN Manager has only been available through OEMs to date.

"By selling its own version of LAN Manager, Microsoft is giving users freedom of choice," said Craig Burton, executive publisher of the *Clarke Burton Report*, a monthly research magazine. "Users will no longer be constrained to buying versions of the product that only work with a particular OEM's hardware. This will help accelerate the acceptance of LAN Manager."

Jonathan Yarmis, vice-president of the personal computer service at Gartner Group, Inc. in Stamford, Conn., agreed. "The move solidifies and stabilizes the LAN Manager camp and will spur application development.

"Microsoft and its OEMs have to present a unified front, especially in light of Novell's merger
(continued on page 6)

Fax facts

Average:	
Number of users per fax machine	10 to 50
Number of pages transmitted per day	15
Cost per page of transmission	35 cents
Cost per sheet of paper	5 cents
Cost of a fax machine	$1,500

Net execs try to tame fax monster

By Tom Smith
New Products Editor

The explosive growth of facsimile machines has created a costly monster of which few companies are aware, let alone able to control.

Most large companies don't even know how many fax machines they have or how much they are spending on dial-up fax transmissions.

"It's like trying to manage envelopes or pieces of paper," said Bob Craig, vice-president of international network planning for The Chase Manhattan Bank, N.A. in New York. "People don't think it's worth the cost of managing it."

Yet the costs can be staggering. Annual transmission costs can be in the tens of millions of
(continued on page 8)

NETLINE
▲▲▲

AT&T TRIDOM plans to trial a pan-European VSAT network with two users. Page 2.

A TARIFF 15 USER is the loser in a heated battle between MCI and AT&T. Page 2.

VENDORS AIMING for FDDI interoperability form a testing consortium. Page 2.

3COM ELECTS Benhamou to the post of president. Page 4.

AMEX AWARDS MCI with a service contract that could be worth up to $100m. Page 4.

US SPRINT EXTENDS VPN services into international markets. Page 4.

PRIVATIZING TELECOM in Eastern Europe is a question of capital. Page 43.

NEWSPAPER

FEATURE
▲▲▲

Telecom privatization will aid int'l users

By Norman Lerner
Special to Network World

Most countries — industrialized, developing, capitalist and socialist — are at some stage of restructuring their telecommunications systems in order to accommodate and take advantage of the great political and economic changes now sweeping the globe.

In many places, this restructuring is taking the form of privatization of formerly nationalized telecommunications systems. This important trend raises major questions for multinational users of telecommunications services, including: Where is this happening and why? How will it affect the way we do business? And what will be the long and short-term effects on telecommunications services to and from these countries?

This article examines the trend toward privatization in
(continued on page 38)

The results are in and Network World is the clear leader. The 1990 Wall Street Journal/ICA Member Study is conducted among members of the prestigious International Communications Association (ICA), an organization whose representatives purchase $16 billion of information technology products and services each year.

Since Network World began in 1986, we've maintained a singular focus: to be the most useful source of information for users involved in multivendor, multisite enterprise networks and, in doing so, provide the most value for our advertisers.

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Where the network world gets its network news.

Banyan offers VINES release

continued from page 1

processor. Although running NetWare and LAN Manager on multiprocessor servers improves network efficiency and response time, these operating systems only support asymmetrical processing, meaning that specific tasks must be assigned to a particular processor.

One processor, for instance, may be designated to run user applications, while another might be reserved for file services such as opening files or sending jobs to print queues.

This means that when a task is run, it must wait for the appropriate processor to be free, often resulting in system and network bottlenecks, Allchin said.

"If only a few applications require processor time, then performance levels will remain high," Allchin said. "But when demand for applications rises, the application processor will become a bottleneck. And if an application requires a file service transaction to be completed, the application must be suspended while it waits for its file-related activities to be serviced by the other processor."

By contrast, symmetric multiprocessing systems allow every processor in the server to perform every computational task on a first-come, first-served basis.

Essentially, this means users aren't waiting in line for tasks to be performed on one overloaded processor while another processor remains idle because it is reserved for one specific task.

Power to the people

Another advantage of VINES SMP is that it enables a reduction in the number of servers needed, Allchin said.

VINES SMP supports from 8M to 256M bytes of random-access memory and Compaq's Intelligent Disk Array, which enables a single server to be configued with as much as 1.6G bytes of internal disk storage.

Additionally, VINES SMP can support both 16-bit Industry Standard Architecture and 32-bit Extended Industry Standard Architecture token-ring and Ethernet LAN network interfaces.

James D'Arezzo, Banyan's vice-president of marketing who joined the company last month after seven years at Compaq, said Banyan and Compaq will work closely together in marketing, distribution and training their respective resellers on VINES SMP.

According to D'Arezzo, the companies will also collaborate in helping independent software developers generate applications that take advantage of the multiprocessing capabilities of VINES SMP. Banyan and Compaq also agreed to share product updates and plans for VINES SMP and the Compaq SystemPro.

> Another advantage of VINES SMP is that it enables a reduction in the number of servers needed, Allchin said.

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VINES SMP costs $13,995, which is about 10% to 14% of the $100,000-plus price tag of comparable symmetrical multiprocessor minicomputers, according to Craig Burton, executive publisher of the *Clarke Burton Report,* a monthly news analysis publication.

"My hat's off to Compaq and Banyan," Burton said. "No other network operating system vendor is offering users the option of having the power and functionality of a minicomputer contained in their 386 and 486 servers for a fraction of the cost of the larger systems.

"Banyan has raised traditional file server-based networks to new performance heights, and this will help to speed the acceptance of the true client/server network model," he said.

Banyan will also sell a VINES SMP Upgrade Kit to bring a single-processor SystemPro running VINES Version 4.0 up to VINES SMP Version 4.0 for $7,995. ◪

Court may order FCC to examine Tariff 12

continued from page 4

price at 25% above tariff levels?"

Carpenter admitted that was unlikely, but he insisted that customers might be willing to pay a 5% premium to get stabilized rates.

While seemingly convinced that the FCC erred in approving Tariff 12, the judges expressed concern about the consequences of overturning the ruling. They asked whether customers would continue to receive service and whether the FCC would make a real effort to reinvestigate the issue.

"What if [the FCC] says it's tired of being bothered [about Tariff 12] and just drops the investigation?" Edwards asked.

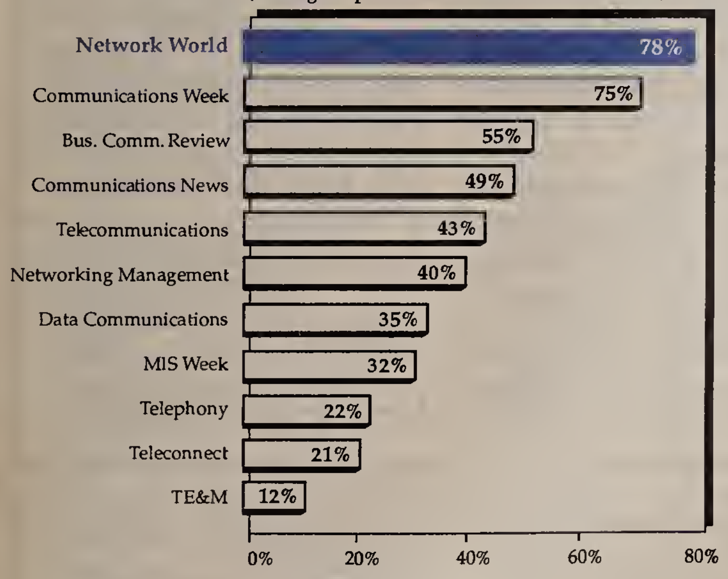
Ingle assured the judges that the FCC would reopen the investigation into Tariff 12 and said customers should be able to continue receiving service during the investigation.

If, upon reexamination, Tariff 12 was judged to be similar to other offerings, the FCC would have to determine whether price differences are discriminatory. In order to continue Tariff 12 as it is currently designed, the FCC would have to determine whether price differences could be justified by some factor such as differences in the cost of providing service. ◪

ing Publication In America

Domestic Regular Readership

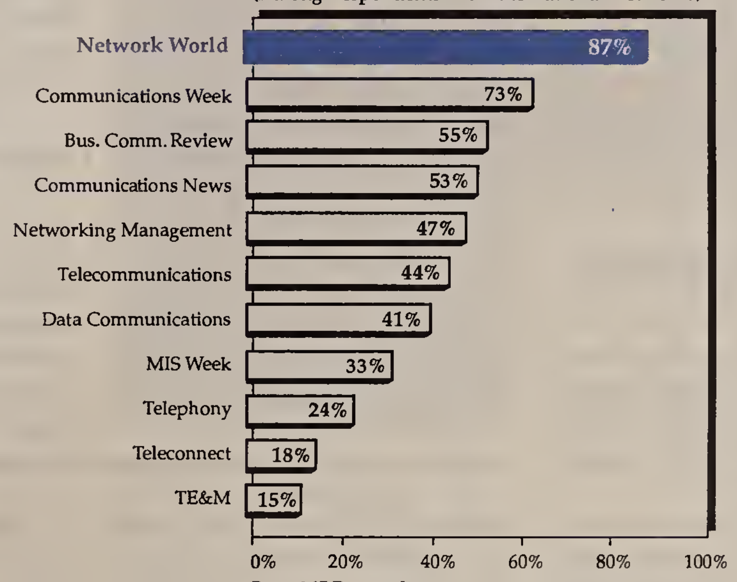
(Among Respondents with Domestic Networks)



Base: 336 Respondents
Regular readership is at least three out of four issues.

International Regular Readership

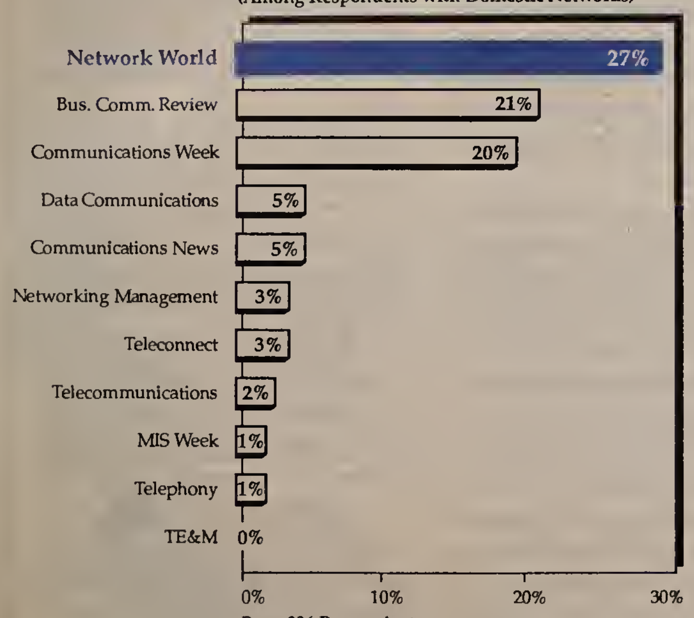
(Among Respondents with International Networks)



Base: 165 Respondents
Regular readership is at least three out of four issues.

Domestic
Most Important/Useful

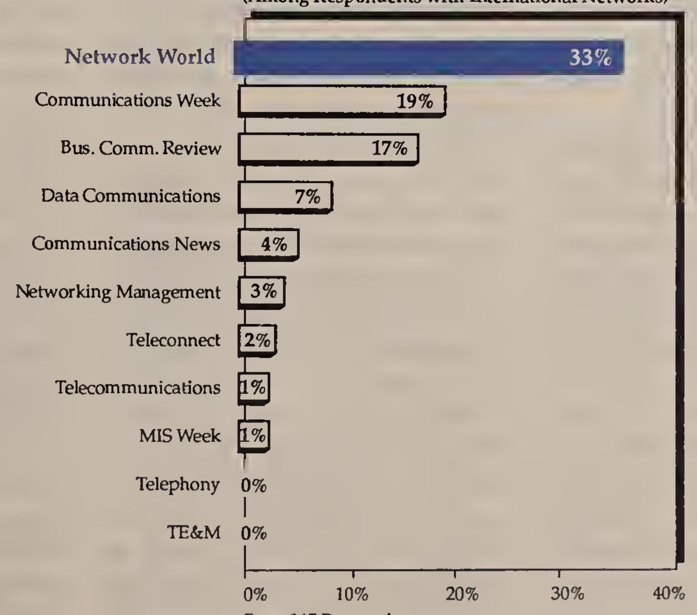
(Among Respondents with Domestic Networks)



Base: 336 Respondents

International
Most Important/Useful

(Among Respondents with International Networks)



Base: 165 Respondents

Source :1990 Wall Street Journal / ICA Member Study

Timeplex ups TimeView/2000

continued from page 4

consoles with a single TimeView/2000 system. That will let users divvy up management tasks among various operators and will allow users with geographically dispersed management centers to move control of their nets as time zones dictate.

The company also announced the Time/View Gateway NV, an OS/2-based NetView/PC application capable of shipping Link+ network alarms to IBM's host-based NetView network management system.

Previously, Timeplex offered only a DOS-based NetView/PC application for its older Link Network Management System, a text-driven management tool that required a more experienced operator than the graphics-based TimeView/2000.

Although Time/View Gateway NV is said to support more feature-rich applications than its DOS predecessor, it still provides only monitoring, not two-way control. Babcock said Timeplex will examine IBM's recent NetView enhancements, including an LU 6.2 interface, before deciding how to offer control of Link+ systems from NetView.

Also last week, Timeplex announced a statement of direction to support 8K bit/sec voice compression on its Link+ multiplexers. The highest level of voice compression the company currently supports is 16K bit/sec.

Timeplex muxes to support frame relay

NEW YORK — Timeplex, Inc. last week joined the frame relay fray by announcing its intention to support the interface standard on its Link+ multiplexer family. It also committed to developing a new multiplexer based on cell relay technology.

Analysts applauded the plan to support cell relay but questioned how well frame relay will work with the Link+'s circuit-switched architecture.

"Frame relay does not work well with circuit-switched technology, regardless of what any of the circuit switch vendors tell you," said Rick Malone, a principal with Vertical Systems Group, a consultancy in Dedham, Mass.

Circuit-switched multiplexers do not let users take advantage of the efficiencies of frame relay because it requires users to dedicate bandwidth by application, whereas fast packet or cell relay multiplexers let applications share bandwidth.

But James Babcock, Timeplex's vice-president of product management, said frame relay will let Link+ users support applications such as local-area network bridging with fewer circuits and I/O ports than are required today.

For LAN bridging, frame relay obviates the need to dedicate a channel across the backbone for every two LANs to be connected. By comparision, frame relay channels can be shared by all LANs linked to the backbone, Babcock said. This also reduces the number of multiplexer I/O ports required.

But analysts said that is only one of the benefits of frame relay. "You don't leverage all of the functionality of the packet format when you're sending it over [time-division multiplexer] channels," said Jim Harrison, senior research analyst with the META Group in Westport, Conn.

Used with a fast packet switching architecture, frame relay can let an application command the entire bandwidth of a backbone circuit, a claim Timeplex can't make.

But Babcock contends that at speeds of T-1 or below, the fast packet technique is actually inferior to circuit switching because data, especially LAN data, is bursty. When forced to contend with voice, which usually takes priority, data packets get dumped on the floor, he said.

If nothing else, Timeplex's work with frame relay will give the company an edge when it introduces a fast packet or cell relay multiplexer, analysts said.

The company said the frame relay interface should be available within a year and the cell relay multiplexer will be ready in the 1993-to-1995 time frame.

— *Paul Desmond*

Software Pub. intros application

continued from page 2

InfoAlliance enables workstation users to read and write data directly from IBM's OS/2 Extended Edition Database Manager and Ashton-Tate's dBase III Plus and dBase IV. It supports the import and export of data from ASCII, Lotus Development Corp.'s 1-2-3 and Data Interchange Format files, and the export of data to Software Publishing's Harvard Graphics.

In the second quarter of 1991, the server portion of the product will be enhanced to provide access to Microsoft's SQL Server data base server and IBM's mainframe DB2 relational data base management system.

The Mountain View, Calif.-based company said it will support access to other SQL-compliant DBMSs in the future.

"Providing access to enterprise information is the next wave in the PC industry," Gibbons said.

One early user of the product agreed. "It's the closest thing to the killer application I've seen," said Peter Wyeth, director of service systems for the Provident Companies, an insurance firm in Chattanooga, Tenn. "We chose OS/2 as a strategic platform but it hadn't provided us with much additional benefit until we started using InfoAlliance. It lets us take advantage of OS/2."

The Provident has been working with InfoAlliance on OS/2 Extended Edition servers and Personal System/2 Model 70s on its IBM Token-Ring Networks, and has developed a number of applications, including a fleet maintenance system. Wyeth said the product has dramatically reduced application development time. The Provident intends to provide access to DB2 in the future.

To support access to other information sources, a network administrator develops server directories in InfoAlliance that list available files and their locations. Users can choose from these files and the server portion will retrieve the data.

InfoAlliance provides a form design tool that enables users to create custom forms. In addition, users can work with existing forms by scanning them into InfoAlliance. It offers standard report formats as well as a custom report generation tool.

InfoAlliance includes a graphical application generator that supports a feature known as location transparency. That feature allows an application created by one user to be accessed by other users across the network.

Users can also build menu-driven applications using the graphical interface point-and-click system to choose operations and data to be manipulated.

The product's security system lets administrators limit access to information at the file, directory and server levels. It provides a management tool, Datasource Integrator Server Administration Program, that enables an administrator to determine which files are in use and by whom.

InfoAlliance supports advanced data integrity features, such as field validation formulas, transaction control and rollback, and a two-phase commit protocol that ensures the data is accurately updated in multiple sources across a net.

Pricing for InfoAlliance, which will ship this month, is based on the customer's specific network configuration. For example, the product is priced at $99,500 for a network with 200 clients and nine servers. For a network of 10 clients and a single server, the cost is $8,500.

Users forced to examine E-mail

continued from page 1

way between the company's computer system and its external mail service.

While Epson has denied that it systematically read E-mail messages, the case has other E-mail managers wondering if their company's E-mail policies are adequate to protect against similar legal action.

"Anyone who is not currently appraising their E-mail policies in light of the Epson case is probably remiss," said Brian Cary, director of technical support for the American Bar Association in Chicago and a member of the board of directors of the Electronic Mail Association.

"I am glad the [Epson] case came up," said an E-mail manager at a large consumer products firm who wished to remain anonymous. "It is going to motivate our executives to sit down with lawyers and establish a company-wide policy regarding E-mail."

But for many companies, defining an E-mail policy — or more broadly, a policy that addresses workplace privacy for all forms of electronic and paper-based communications — may be easier said than done.

Firms must balance their legal right to protect their property and maintain systems against the privacy needs of employees, without stifling the free flow of information among professionals inside and outside the firm.

Legal standing

According to Lance Rose, an attorney with Wallace & Rose, a New York law firm specializing in computer issues, the Electronics Communications Privacy Act (ECPA) of 1986 gives companies the right to monitor E-mail messages and other forms of electronic communications.

This act, which evolved from the Watergate wiretapping laws, allows administrators to monitor messages to protect "property interests," Rose said.

While few, if any, companies systematically scan E-mail messages to uncover illicit activities, system administrators at most companies occasionally read the contents of electronic messages in the course of troubleshooting garbled messages and delivering lost mail, according to managers and consultants.

While this is perfectly allowable under the ECPA, companies can run into trouble if they lead users to believe that E-mail messages are private and won't be read by anyone other than the intended recipient, Rose said.

Merely referring to E-mail as a "private mail system" can give users the expectation of privacy, and as a result, companies may forfeit their right under the ECPA to monitor E-mail for any reason.

To avoid legal hassles, companies should play it safe and dispel any notions that their E-mail systems are private, said Jonathon Wallace, another Wallace & Rose attorney.

Wallace suggested that companies should frequently broadcast messages indicating that messages are not private, and system programmers should remove all privacy options from the system.

Citicorp, for example, presents its E-mail users with a one-line reminder about the bank's policy toward E-mail each time they log on to the system, said Chuck Holland, vice-president of the bank's Citicorp Technology Office in Santa Monica, Calif.

The statement says employees should only use the E-mail system to conduct the business of Citicorp and all messages are the property of Citicorp, he said.

There is a fine line, however, between proper notification and warnings that may scare off users. "You don't want to alienate people and be perceived as Big Brother," said the Bar Association's Cary.

Rather than broadcast rules about the E-mail system across the network, Cary said he would like the Bar Association to print the company's policy toward E-mail in the firm's personnel manual.

NETWORK WORLD

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Group seeks delay of caps

continued from page 1

In a joint motion to the FCC, the coalition reiterated concerns voiced for months that price caps would lead to higher service prices and deterioration of the public network. The group asked the agency to postpone action on price caps and to put forward a detailed proposal that would be open to comment by all parties.

Although the FCC has not issued a final price cap plan, it has outlined its intentions in three orders during the last two years.

"Regulatory reform of this magnitude should not proceed without an ample opportunity for all parties to assess and provide input regarding the likely impact of the commission's action," stated the coalition in its Joint Motion for Tentative Decision.

"The commission should issue a tentative decision that affords additional opportunity for public comment on the details of its incentive regulation plan, which currently are unknown. [That is] necessary to ensure that users truly will be better off under incentive-based regulation," the motion continued.

The FCC last week acknowledged receipt of the coalition's motion but declined comment.

Some members of the U.S. House of Representatives, including Rep. John Bryant (D-Texas), Rep. Jim Cooper (D-Tenn.) and Rep. Mike Synar (D-Okla.), have also expressed opposition to the price cap plan. A House aide last week said members of the House Telecommunications and Finance Subcommittee may send a letter to Sikes requesting postponement of a decision.

That was confirmed later in the week by Cooper, who spoke at a forum sponsored by the Competitive Telecommunications Association. Cooper, who labeled the price cap plan as unwise, also urged the FCC to delay the vote and issue a more detailed proposal.

Last March, Sikes made it clear he would follow the lead of his predecessor, Dennis Patrick, in implementing price caps. The FCC intends to replace the current rate-of-return system for regulating dominant exchange carriers with the local exchange carrier price cap plan outlined in the April 1989 order instituting price caps for AT&T.

Proponents assert that the regulatory change will lead to greater innovation and network improvement. But opponents allege that the local carriers will neglect network improvements to maximize profits.

The AT&T price cap plan drew opposition, but users agreed that long-distance competition is sufficient to keep prices down. The proposed price cap plan for the local exchange carriers, however, has garnered widespread opposition because the carriers have negligible competition.

The coalition charges that the pricing flexibility in the plan would result in major price increases for some services and cost customers at least $5 billion more during the first four years of price cap regulation than they would pay under the current rate-of-return system.

Long-distance carriers such as AT&T and MCI Communications Corp. point out that half their expenses are derived from local exchange carrier access charges, so increases in access charges could put pressure on them to raise long-distance rates.

Sikes has stated his belief that price caps are an incentive-based system that will generate consumer benefits. The FCC wants a price cap plan for the local exchange carriers in place by Jan. 1, so the commission could ignore the last minute appeals and vote this week in favor of a sweeping order that would relegate FCC rate-of-return regulation to the history books.

Users decry LEC price cap plan

Corporations and trade groups that asked the FCC to delay its vote on price caps for the LECs

- ☐ Adapso
- ☐ Ad Hoc Telecommunications Users Committee
- ☐ Aeronautical Radio, Inc.
- ☐ America's Carriers Telecommunications Association
- ☐ American Airlines, Inc.
- ☐ American Express Co.
- ☐ AT&T
- ☐ Automatic Data Processing, Inc.
- ☐ Boeing Computer Services Co.
- ☐ Committee of Corporate Telecommunications Users
- ☐ CompuServe, Inc.
- ☐ Consumer Federation of America
- ☐ Electronic Data Systems Corp.
- ☐ Ford Motor Co.
- ☐ General Electric Co.
- ☐ Independent Data Communications Manufacturers Association, Inc.
- ☐ International Communications Association
- ☐ J.C. Penney Co., Inc.
- ☐ McGraw-Hill, Inc.
- ☐ MCI Telecommunications Corp.
- ☐ Metropolitan Fiber Systems, Inc.
- ☐ National Association of State Utility Consumer Advocates
- ☐ National Data Corp.
- ☐ National Retail Federation
- ☐ New York Clearing House Association
- ☐ Office of the People's Counsel of the District of Columbia
- ☐ Ohio Consumer's Counsel
- ☐ Tele-Communications Association, Inc.
- ☐ 3M

SOURCE: *NETWORK WORLD*
GRAPHIC BY SUSAN J. CHAMPENEY

Oracle, Compaq unveil software

continued from page 2

can start with a single Intel Corp. 80386 or 80486 processor configuration and add multiple 386 or 486 processors as their data base server needs grow.

Traditional file servers process one task at a time. In contrast, symmetrical multiprocessing systems such as the Compaq SystemPro can divide tasks over multiple processors to speed response time, Tims said.

Because Oracle Server for PC Unix fully utilizes symmetrical multiprocessing, users can read and write from the data base and commit transactions in parallel.

Oracle Server for PC Unix can work with Apple Computer, Inc.'s AppleTalk, Banyan Systems, Inc.'s VINES, IBM's LAN Server, Microsoft Corp.'s OS/2 LAN Manager, as well as Transmission Control Protocol/Internet Protocol and any Network Basic I/O System-compatible network.

"Regardless of whether the user's desktop device is an asynchronous terminal, a PC running DOS, OS/2 or Unix, or a Macintosh, users can directly access data residing on the Unix data base server," said James Sha, vice-president of Oracle's Unix Product Division.

Oracle Server for PC Unix is also the first Unix server to support Novell's Internetwork Packet Exchange/Sequenced Packet Exchange (IPX/SPX) protocols.

Industry analysts praised the Oracle/Compaq announcement because until now, NetWare users, which constitute about 60% of the installed base of LAN users, have been unable to access data bases on Unix servers.

Richard Finkelstein, president of Performance Computing, Inc., a Chicago-based consulting firm, said that until this announcement, only minicomputer- and mainframe-based DBMSs could utilize symmetrical multiprocessing hardware.

"Symmetrical multiprocessing on microcomputer servers for PC LANs is important because it gives small and midsize users a lot of processing power at a relatively cheap price," he said. "The announcement is good news for small and midsize users."

But Finkelstein added that users may encounter some bugs early on. "Historically, it's taken DBMS software and network operating system software one to two years of running on a [symmetrical multiprocessing] machine before all the bugs are worked out, " he said.

Oracle Server for PC Unix requires a minimum of 6M bytes of random-access memory and 80M bytes of hard disk storage.

The product is scheduled to ship in October. Pricing begins at $5,100 for a two- to eight-user 386 or 486 single-processor configuration.

NET makes run with ADNX line

continued from page 6

is much more of a stand-alone product that can be used either with IDNX backbones or in stand-alone applications."

NET jointly developed the IDNX/10 with Telco Systems Network Access Corp. in Fremont, Calif. The IDNX/10, like the ADNX/48, supports as many as two T-1 lines. But the IDNX/10 has not met NET's expectations, selling in the hundreds of units rather than the anticipated thousands of units, Owen said.

"I think we somewhat mischaracterized the feeder marketplace," Owen said. "We thought it could sustain much higher prices and functionality."

Depending on configuration, the IDNX/10 costs $10,000 to $30,000 — too much for many users to spend on a multiplexer for a remote site, analysts said. Other vendors offer products that cost half as much, they said.

The ADNX/48 is much less expensive. NET will offer an eight-slot ADNX/48 for $3,500, a 12-slot model for $4,200 and a 24-slot model for $4,200. The ADNX/48 can be ordered now and will be available by year end. The company will continue to offer the IDNX/10.

NET's continued effort to make a dent in the market for low-end T-1 equipment is indicative of a trend among T-1 vendors, analysts said. "While the market for backbone network muxes is slowing down, there is growth in extending those networks to remote locations," said Berge Ayvazian, a vice-president at The Yankee Group, a Boston-based market research firm.

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"Many corporations have substantially built their T-1 backbones and now, as T-1 [line] costs continue to decline, they are bringing in more smaller locations, and this product is really targeted at that expansion," Owen said.

DEC details Phase V plan

continued from page 1

ted that DEC did not fully understand the difficulty of upgrading the company's broad product line to support Phase V.

The announcement last week of Version 2.0 of DEC X.25 Access for Ultrix, a product that lets Ultrix customers use X.25 transmission facilities, is a significant step toward Phase V, according to Augun. The product previously supported Transmission Control Protocol/Internet Protocols.

Augun said DEC will follow this announcement with others during the next 18 months that will fill out Phase V. The majority of the Phase V products will be unveiled in the first nine months of that period, she added. The outstanding products include a version of Directory Name Services that supports X.500 and Virtual Terminal Protocol support.

Mixed reviews

"All of this stuff takes time," said Hal Folts, president of Omnicom, Inc. in Vienna, Va., which advises users and vendors on the application of standards for OSI. "But DEC has a comprehensive plan that I'm quite impressed with."

Some analysts had less flattering assessments of DEC's progress on Phase V. Howard Niden, senior manager for Price Waterhouse in Chicago, said DEC is failing to deliver on its initial promise to have key portions of Phase V in place by this month. "As late as last October, in front of analysts and consultants, Digital was confidently saying Phase V was on target for September."

Frustrated user

Hughes Aircraft's Huber has been frustrated in his attempts to obtain Phase V rollout plans from DEC. "I have formally requested of DEC over the past six to eight months a rollout schedule, and they have stonewalled my request," he said.

Steve Wendler, vice-president at Gartner Group, Inc. in Stamford, Conn., suggested that Phase V has been the victim of problems at DEC. "I think the project has been mismanaged," he said.

Augun contends, however, that the implementation is on schedule and will be done in "logical segments" so users can readily migrate from Phase IV to Phase V. "We feel it behooves us to make absolutely certain that the transition for those people is smooth before we announce the products," Augun said.

Observers said both DEC and its users, particularly government agencies that need to comply with the Government OSI Profile (GOSIP) specification, could suffer from prolonged delivery delays.

"The whole idea was that the GOSIP train left in August, and that was last month," said David Judson, senior technical director to the integration technology division at Wright Patterson Air Force Base in Ohio. "I'm trying to be compliant, and that's why I'm interested in this."

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John Gallant
Editor

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